

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	Page 1 of 3
2. AMENDMENT/MODIFICATION NO. 0004	3. EFFECTIVE DATE 08/11/2010	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)		
6. ISSUED BY Bureau of Reclamation - GP-3800 316 North 26th Street Billings, MT 59101		CODE 00060	7. ADMINISTERED BY (If other than Item 6) Bureau of Reclamation - GP-5000 316 North 26th Street Billings, MT 59101		CODE 00060
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and Zip Code) No Contractor Information Available			(X)	9A. AMENDMENT OF SOLICITATION NO. R10PS60186	
			(X)	9B. DATED (SEE ITEM 11) 06/17/2010	
				10A. MODIFICATION OF CONTRACT/ORDER NO.	
				10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE			

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS.

IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Project Title: Glendo Dam Modification, Oregon Trail Division, Glendo Unit, Pick-Sloan Missouri Basin Program, Wyoming

See attachment for changes incorporated by this amendment:

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Gerri Voto-Braun	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. United States of America BY _____	16C. DATE SIGNED 08/11/2010
(Signature of person authorized to sign)		(Signature of Contracting Officer)	

Description of Change(s):

1. In the Table of Contents, remove Page iii and iv and substitute therefor the attached revised Page iii and iv.
2. In Part I – The Schedule, remove Section – Supplies or Services and Prices in its entirety and substitute therefor the attached revised Section B.
3. In Part I – The Schedule, Section C – Technical Specifications, remove Section 01 14 00 – Work Restrictions in its entirety and substitute therefor the attached revised Section 01 14 00.
4. In Part I – The Schedule, Section C – Technical Specifications, Section 01 33 00 – Submittals, remove Pages 01 33 00-13 through 01 33 00-16 and substitute therefor the attached revised Pages 01 33 00-13 through 16.
5. In Part I – The Schedule, Section C – Technical Specifications, Section 01 35 20 – Safety and Health, remove Page 01 35 20-1 and 01 35 20-2 and substitute therefor the attached revised Page 01 35 20-1 and 01 35 20-2.
6. In Part I – The Schedule, Section C – Technical Specifications, Section 01 35 20 – Safety and Health, remove Page 01 35 20-5 and 01 35 20-6 and substitute therefor the attached revised Page 01 35 20-5 and 01 35 20-6.
7. In Part I – The Schedule, Section C – Technical Specifications, remove Section 01 35 22 – First Aid in its entirety and substitute therefor the attached revised Section 01 35 22.
8. In Part I – The Schedule, Section C – Technical Specifications, remove Section 01 35 30 – Contractor’s Onsite Safety Personnel in its entirety and substitute therefor the attached revised Section 01 35 30.
9. In Part I – The Schedule, Section C – Technical Specifications, remove Section 01 51 00 – Temporary Utilities in its entirety and substitute therefor the attached revised Section 01 51 00
10. In Part I – The Schedule, Section C – Technical Specifications, Section 03 30 00 – Cast-In-Place Concrete, remove Page 03 30 00-7 and 03 30 00-8 and substitute therefor the attached revised Page 03 30 00-7 and 03 30 00-8.
11. In Part I – The Schedule, Section C – Technical Specifications, remove Section 03 37 10 – Shotcrete in its entirety and substitute therefor the attached revised Section 03 37 10.
12. In Part I – The Schedule, Section C – Technical Specifications, Section 03 37 70 – Roller-Compacted Concrete, remove Pages 03 37 70-7 through 03 37 70-10 and substitute therefor the attached revised Pages 03 37 70-7 through 03 37 70-10.
13. In Part I – The Schedule, Section C – Technical Specifications, Section 03 37 70 – Roller Compacted Concrete, remove Page 03 37 70-15 and 03 37 70-16 and substitute therefor the attached revised Page 03 37 70-15 through 03 37 70-16.
14. In Part I – The Schedule, Section C – Technical Specifications, remove Section 31 09 10 – Abandoning Existing Piezometers in its entirety and substitute therefor the attached revised Section 31 09 10.
15. In Part I – The Schedule, Section C – Technical Specifications, Section 31 33 13 – Rock Reinforcement, remove Page 31 33 13-7 and 31 33 13-8 and substitute therefor the attached revised Page 31 33 13-7 and 31 33 13-8.

16. In Part I – The Schedule, Section C – Technical Specifications, remove Section 32 17 20 – Painted Traffic Lines and Markings in its entirety and substitute therefor the attached revised Section 32 17 20.
17. In Part I – The Schedule, Section C – Technical Specifications, remove Section 33 05 16 – Relocating Existing Utility Box and Hydraulic Lines in its entirety and substitute therefor the attached revised Section 33 05 16.
18. In Part I – The Schedule, Section C – Technical Specifications, insert the attached new Section 33 70 10 – Relocation of Existing Utility Line after Section 33 42 16 – Concrete Pipe Culverts.
19. In Part I – The Schedule, Section C – Technical Specifications, remove Section 34 71 13 – Removing Existing Guardrail in its entirety and substitute therefor the attached revised Section 34 71 13.
20. In Part I – The Schedule, Section C – Technical Specifications, remove Section 34 71 15 – Box Beam Guardrail in its entirety and substitute therefor the attached revised Section 34 71 15.
21. In Part I – The Schedule, Section C – Technical Specifications, Section 52 00 00 – Drawings, remove the following drawings and substitute therefor the attached revised, same-numbered drawings:

<u>Sheet No.</u>	<u>Drawing No.</u>
8	449-D-1603, Rev. 07/23/10
11	449-D-1606, Rev. 07/26/10
15	449-D-1610, Rev. 06/17/10
23	449-D-1618, Rev. 07/23/10
34	449-D-1629, Rev. 08/09/10
45	449-D-1633, Rev. 07/23/10
47	449-D-1635, Rev. 07/23/10
49	449-D-1637, Rev. 07/23/10
50	449-D-1638, Rev. 07/23/10
51	449-D-1639, Rev. 07/23/10

22. In Part I – The Schedule, Section C – Technical Specifications, remove Section 53 10 00 – Geologic Investigations in its entirety and substitute therefor the attached revised Section 53 10 00.
23. In Part I – The Schedule, Section C – Technical Specifications, remove Section 53 20 00 – Records of Geologic and Subsurface Investigations in its entirety and substitute therefore the attached revised Section 53 20 00.
24. In Part I – The Schedule, Section C – Technical Specifications, Section 53 20 00 – Records of Geologic and Subsurface Investigations, remove Page G123 and G124 and substitute therefor the attached revised and new Pages G123, G123A, G123B, G123C and G124.

Receipt of Bids: The hour and date for receipt of bids remains the same, 2:00 PM on August 20, 2010.

For convenience, essential changes on the revised solicitation pages are indicated by a vertical line in the margin where lines or paragraphs were changed or added to the previous issue. However, all portions of the revised pages shall apply where these changes have or have not been indicated.

* * * * *

The organized site visit was held on July 8, 2010. Since the visit, prospective contractors have been submitting questions or requests for clarification via e-mail. A listing of questions and appropriate response are attached for information.

Solicitation No. R10PS60186
Glendo Dam Modification
Questions and Answers

1. *It is not clear in the Specifications if the hydraulic lines for the low flow outlet works need to be maintained in a pressurized condition.*

Response: A temporary installation to maintain hydraulic pressure in the system will be required so that the gate for the low flow outlet works will remain open. Section 33 05 16 – Relocating Existing Utility Box and Hydraulic Lines will be revised to include this requirement.

2. *What is the rate for water from Glendo Reservoir for construction purposes?*

Response: Section 01 51 00 – Temporary Utilities will be revised to include the rate for water obtained from the reservoir which is \$75 per acre-foot for a minimum purchase of 8 acre-feet.

3. *On sheet 1606 Material Distribution Chart, it shows wasting all of the excavation, and borrowing all the material needed for embankment of associated items. However on Sheets 1608, 1609, and 1615, the notes indicate that suitable excavation can be used as fill. Is it the intention of the BOR to pay for the material under the associated excavation and borrow items when it is used for embankment?*

Response: In accordance with the note on the drawing and Section 51 00 30 – Earth Materials Distribution Diagram, Paragraph 1.01.C: “The provided earth materials distribution diagram is solely for information of the Contractor. Data on diagram is intended to be used only as a guide.” Suitable excavated material may be approved by Reclamation and used as certain fill materials per the Specifications.

Excavation, borrow, and embankment will be paid as described in the measurement and payment paragraph of the appropriate section.

4. *Can the bottom of the Auxiliary Spillway be accessed by excavating a roadway into the area? If this is possible how could the excavated area be backfilled?*

Response: Section 03 37 70 – Roller-Compacted Concrete states in Paragraph 3.14.A, “Any excavation performed to construct ramps for construction equipment to place RCC shall be refilled with RCC to finished lines and grades.”

5. *Is the Specification 03.37.70 Section 2.03 Coarse Aggregate intending to describe a process where as the coarse aggregate portion of the mix is wet finished screened as the material entering the plant feed bins? If this is the case can the RCC and Structural Concrete be produced and transported to the placing site from the Stockpile Area or Borrow Area #4? If the RCC must be produced at the Batch Plant area stated in the plans can the Coarse Aggregate for the RCC and Structural Concrete be finished screen at another area and transport to the Batch Area and then sprayed with water as it is loaded into the batch plant?*

Response: Yes, Section 03 37 70 – Roller Compacted Concrete, Paragraph 2.03 is intending to describe a process where the coarse aggregate portion of the mix is wet finish screened as the material enters the plant feed bins.

Yes, RCC and cast-in-place concrete can be produced and transported to the placing site from the Stockpile Area or Borrow Area #4 provided that the aggregate finish screening per Section 03 37 70 –

Roller Compacted Concrete, Paragraph 2.03.D is met. Finish screening at a location other than the batching area will not be permitted.

Section 03 37 70 – Roller Compacted Concrete, Paragraphs 2.02.A.1 and 2.03.A.1 will be amended to add “commercial” before “approved source”.

6. *BID ITEM # 17, Cementitious Materials for Cast-In-Place Concrete 1700 Tons. What does this item include? Is this to pay for the cement in the all the CIP items?*

Response: Section 03 30 00 – Cast-In-Place Concrete, Paragraph 1.01.G defines the measurement and payment for cementitious materials in cast-in-place concrete, and the cementitious materials include both cement and pozzolan.

7. *With the RCC specification requiring 3 lifts per day, that calculates from 1,200 CY's on the bottom 3 lifts to 2,800 CY's on the top 3 lifts, the requirement of a 400 CY/HR minimum plant would seem to be a little aggressive. Would the Bureau of Reclamation consider the use of a smaller plant?*

Response: A plant with a minimum batching and mixing rated capacity of 300 cubic yards per hour is acceptable provided the minimum rate of placement meets the requirements of the specifications. Section 03 37 70 – Roller-Compacted Concrete, Paragraph 2.11.A.1 will be revised to read, “Batching and mixing rated capacity minimum: 300 cubic yards per hour.”

8. *The contractor staging area seems small to accommodate a 400 CY/HR plant and Stockpiles. Would it be possible to expand the existing site?*

Response: Drawing 449-D-1603 will be revised to designate Borrow Area 4 as “Borrow Area 4, Stockpile Area, Waste Area, and Contractor Use Area” and the contractor use area south of the auxiliary spillway will be modified to delete the “batch plant location” notation.

9. *With the requirement of stockpiling 1/2 of the aggregate prior to starting there is not enough area to accomplish this. Can we set up in borrow area #4 and the stockpile site?*

Response: Yes, see response to Questions No. 5 and 8.

10. *Has the water in the lake been tested for acceptance for use in concrete, RCC, and soil cement?*

Response: No.

11. *Can we gain access to the borrow areas to do some additional test holes to determine the quantity and quality of the material?*

Response: Section 53 10 00 – Geologic Investigations will be revised to allow potential bidders to have access to the borrow areas to conduct their own investigations.

12. *Can we also gain access to the samples that were saved and are in the lab at the federal center?*

Response: Refer to the last sentence on page 1 in Section 53 10 00- Geologic Investigations Paragraph 1.01.A.3, which reads, “Offerors wishing to inspect the samples should make arrangements with the CO.” This paragraph will be revised to also state that the borrow samples can be inspected.

13. *Where do we find out information on Existing Piezometers that have to be abandoned, Depth and Number of them?*

Response: The existing piezometers that will be abandoned or removed are located at the auxiliary spillway site. Drill Hole DH07-1 and DH07-5 were completed as porous tube piezometers PTP07-1 and PTP07-2 respectively. Information on the depth and number of piezometers at the auxiliary spillway site can be found in Section 53 10 00 – Geologic Investigations and drawing 449-D-1645 in Volume III of the Glendo Dam Modification Specifications. Drawing 449-D-1618 will be amended to show the location of the piezometers to be abandoned.

14. *Existing piezometers to be abandoned are located within the limits of the auxiliary spillway excavation. Please clarify what is actually there, and differentiate between piezometers and drill holes.*

Response: A detailed description of the hole completion is described on the geologic logs in Section 53 20 00 – Records of Geologic and Subsurface Investigations. Sheets G-43 through G-45 contain the log for DH07-1 and sheets G-54 through G-55 contain the log for DH07-5. See response to Question 13 for additional information.

15. *I.6, 1452.228-70 (a) states the named insured parties under the policies required shall be the Contractor and the United States of America. As the party to procure and maintain the insurance policies, Contractor will be the sole named insured on the general liability and automobile liability insurance policies. Contractor can name the United States of America as an additional insured but cannot name other parties as named insured's. Please consider amending the requirement to state the United States will be an additional insured on the general liability and automobile liability insurance policies.*

Response: A Certificate of Liability Insurance which identifies the United States of America as an additionally insured party will meet the requirements of this regulation.

16. *I.6, 1452.228-70 (a) states the named insured parties under the policies required shall be the Contractor and the United States of America. Additional named insured's are not commercially available on workers compensation coverage and this work will be performed in Wyoming, which requires all employers obtain their insurance through the Wyoming monopolistic state fund. Would it be possible to delete the requirement to name the United States as a named insured on the workers compensation policy.*

Response: For work performed in the State of Wyoming, workers compensation must be obtained through the Wyoming Department of Employment, however it is not the intent of this regulation for the Government to be an additionally insured party for workers compensation.

17. *Project NTP is scheduled for October 15; however the paving rules for Wyoming state that no asphalt will be laid between the dates of Oct 15 – May 1, that puts a big hiccup in trying to open the New Glendo Road, which means you cannot start any work on the Aux. Spillway. Is the BOR going to let traffic run on just base course or extend the paving limit dates, so that the road work can commence this fall?*

Response: Section 401.4.2 of the WYDOT Standard Specifications for Road and Bridge Construction states that the paving start or finish dates may be extended upon written approval; however, any such extension would be subject to the weather limitations contained therein. Specifications Section 01 14 00 – Work Restrictions will be modified to allow traffic to be conditionally routed onto the relocated Glendo Park Road prior to completion of asphalt paving so the auxiliary spillway excavation may begin prior to May 1 if necessary to meet the contractor's proposed schedule.

18. *I did not see any signage drawings or callouts on the drawings, but there are (3) bid items? Is the BOR going to provide a sign schedule?*

Response: A sign schedule will not be provided; however, the drawings will be revised to include call outs on the general locations for Existing Glendo Park and Dam Signs as well as New Post Mounted Traffic Signs in plan views on drawings 449-D-1633, 449-D-1635, 449-D-1637, 449-D-1638, and 449-D-1639.

19. *Please provide detail for core drilling holes for box beam thru cement treated base. What is the size of the hole and do the posts have anchor plates under this procedure?*

Response: Section 34 71 15 – Box Beam Guardrail will be amended to include details on installation of the guard rail posts in soil-cement. The diameter of the drill holes will be 10 inches and soil plates are not required in the soil-cement installation.

20. *Please provide type and number of end treatments for box beam guardrail.*

Response: WYDOT End Anchorage Type I will be added to Section 34 71 15 – Box Beam Guardrail. See the drawings for guardrail end locations to determine the number of end anchorages.

21. *Please provide length of removal of box beam guardrail.*

Response: Guardrail is located on both sides of the dam and dike and shall be removed within the dam and dike excavation limits, as shown on drawings 449-D-1608 and 449-D-1615. The bid schedule will be amended to include a unit-priced item for the removal of existing guardrail.

22. *What is the quantity for the removal for existing Guardrail?*

Response: See response to Question 21.

23. *Who owns the removed guardrail and where is it to be stored or removed to?*

Response: Section 34 71 13 – Removing Existing Guardrail, 1.04.A will be revised to clarify that the removed guardrail materials become the property of the Contractor.

24. *What is the completion Date of this project?*

Response: In accordance with Paragraph F.1, FAR Clause 52.211-10 Commencement, Prosecution and Completion of Work, the contractor shall be required to complete the entire project ready for use not later than 715 calendar days after receipt of Notice to Proceed.

25. *Where do I obtain a plan holders list?*

Response: With posting of specifications online, the Government no longer maintains a Bidders Mailing List. However, a list of Interested Vendors may be viewed at www.fbo.gov. From this website, search by Solicitation No. R10PS60186; once you have selected the opportunity for Glendo Dam Modification, select the tab labeled “Interested Vendors List”. Interested vendors are also located at <http://ideasec.nbc.gov>. From here, click on Business Opportunities; choose Open Solicitation Search, search by Solicitation No. R10PS60186, Select document number R10PS60186, select “Bidder’s Mailing List”.

26. *Curious where the cost of the Welded Wire Fabric for the shotcrete on the New Aux. Spillway is covered, i.e., what bid item as I cannot find it in the specs or drawings?*

Response: Section 03 37 10 – Shotcrete, Paragraph 1.01.A will be revised to include the cost of the welded wire fabric in the cubic yard price bid for the shotcrete.

27. *Leveling concrete vs. dental concrete. Does the top of the dental concrete become the bottom of the leveling concrete because of the roughness of the cleaned rock?*

Response: No. The use of dental concrete has nothing to do with the roughness of the rock. Dental concrete is to be used in accordance with Specifications Section 03 37 21– Dental Concrete for designated open joints, shear zones, and fractured areas. If the COR directs the placement of dental concrete in the auxiliary spillway, leveling concrete would be placed directly on the dental concrete.

Prospective bidders are further referred to the definition of measurement and payment for leveling concrete found in Section 03 37 70 – Roller-Compacted Concrete, Paragraph 1.01.E.1.a, which reads “Lines shown on drawings for leveling concrete represent the paylines for leveling concrete and any overexcavation requiring additional concrete shall be placed at the Contractor’s expense.”

Prospective bidders are also referred to the definition of overexcavation found in Section 31 23 17 – Excavation for Auxiliary Spillway, Paragraphs 1.01.A.2.d and 1.02.B, which state respectively, “No payment will be made for overexcavation and replacement or refill of overexcavation beyond prescribed excavation lines” and “Overexcavation: Excavation performed for the convenience, fault, or operation of the Contractor beyond specified or directed additional excavation lines. Includes removal of foundation damage by the contractor.”

28. *5-ft Rock Anchors at the top of the slope. How are they paid for?*

Response: The 5-ft rock anchors at the top of the slope at the left abutment of the dam are to be paid for with CLIN 60 – Permanent Rock Anchors. The bid schedule will be revised to include these 5-ft anchors.

29. *Rock Anchor. Can resin installation be used for the 10 and 20-ft anchors?*

Response: No. Section 31 33 13 – Rock Reinforcement, Paragraph 3.04.A states that the use of resin grout is not permitted for the installation of permanent rock anchors. The phrase “rock anchors” will be deleted from Section 31 33 13 – Rock Reinforcement, Paragraph 2.03.

30. *Specification section 31 23 17 3.06A.2 – The maximum exposure time for the bedrock is 14 days. Does this apply only to horizontal surfaces directly beneath foundations, all horizontal surfaces, and/or also all vertical and sloped surfaces?*

Response: Yes. The 14-day exposure limitation for the Brule applies to all surfaces. The permanent cut slopes at the auxiliary spillway all receive shotcrete if they are in Brule. Section 31 23 17 – Excavation for Auxiliary Spillway, Paragraph 3.03.B states, “Leave sacrificial layer of 6 inches in place before excavating to final excavation surface for geologic mapping to occur as required in Foundation Inspection and Geologic Mapping article.” And Section 31 23 17 – Excavation for Auxiliary Spillway, Paragraph 3.03.C states, “Remove sacrificial layer after geologic mapping is completed and prior to concrete placement as approved by COR prior to finished excavated surfaces being covered with concrete or earthfill”. This requirement would also apply to the approach and exit channel of the auxiliary spillway.

31. *Specification section 01 14 00 1.02E – No portion of the dam and dikes shall be lowered between May 15 and September 15. Does this restriction apply to the Auxiliary Spillway work also, or can that work proceed through the summer months?*

Response: The excavation was divided into two stages. The first stage requires the construction of the cofferdam shown on drawings 449-D-1619 and 449-D-1620 and the final excavation as shown on drawings 449-D-1621 and 449-D-1622 is not permitted to be performed until after the auxiliary spillway has been constructed.

Section 31 23 17 – Excavation for Auxiliary Spillway, Paragraph 3.02.B states, “Final stage excavation is to allow for a temporary cofferdam and material defined by the final excavation limits shall not be removed until the auxiliary spillway is operational. Minimum elevation of material associated with the first stage of excavation is elevation 4665.0 as shown on drawings.”

32. *Amendment No. 001 requires that the work be completed in 715 calendar days. Does the BOR anticipate any work suspensions for winter weather and/or for periods outside of the September to May work period when there are no work items that can be accomplished? (One example without work stoppages – if we can perform work from 10/15/2010 continuously through 5/15/2012 it will consume 578 calendar days. If time is not suspended at this point, it will run out on 9/29/2012, which does not allow enough time for any work to be performed during another September to May season).*

Response: As stated in Contract Clause 52.211-10 – Commencement, Prosecution, and Completion of Work, all work is to be completed not later than 715 calendar days after receipt of Notice to Proceed. The contract performance period is continuous.

33. *On DWG 449-D-1630, there appears to be an error in the Parapet Wall Table. Adding each section length together does not give the same length of wall as subtracting the station numbers. It appears that the problem lies between joint #29 and joint #41. Please check joint length vs. station length in this area and advise.*

Response: The stationing shown on drawing 449-D-1630 is the dam axis stationing and the stationing was projected to the parapet wall. Since the parapet wall is on a curve and since the stationing is projected from the axis of the dam, the measured length of the wall along the outside edge of the parapet wall will not be the same as length between stations.

34. *Specification 03 37 70 Section 2.11 A. 1 requires batching and mixing equipment with a minimum rated capacity of 400 cubic yards per hour. Specification 03 37 70 Section 3.08 A. 1 requires a minimum rate of placement of two lifts per day which is considerably less than 400 cubic yards per hour. Is it required to have a plant capable of 400 cubic yards per hour or is 2 lifts per day adequate which requires a maximum of 200 cubic yards per hour?*

Response: See response to Question 7.

35. *Can a concrete mix with the same structural value as the Roller Compacted concrete be substituted for the Roller compacted Concrete?*

Response: Roller-compacted concrete is the material specified. Bidders are expected to bid on the materials as specified.

36. *We are unable to find the geotech sheets for Test Pits TP86-1, 2, and 3 on sheet noted on drawing 449-600-583 (G11).*

Response: The test pit logs for TP86-1, TP86-2, and TP86-3 are included in this amendment.

37. *Would WYDOT's Grading "J" Base be sufficient for the Zone 3A Material?*

Response: The material provided must meet all of the requirements of Section 31 24 15 – Shell, Zone 3A Material.

38. *The Grading “C” Surface Course material is stated to have a 4 to 9 plasticity index in the ASTM Specifications. Our Grading “W” meets the gradation requirements for this specification but it is a non-plastic material. Is this something that will be a problem?*

Response: The material provided must meet all of the requirements of Section 32 15 10 – Gravel Surfacing.

39. *Sheet 449-D-1610 shows box beam guardrail post in soil cement detail. The post appears to go thru the Biaxial Geogrid. Sheet 34 71 15-1 Box Beam Guardrail section States that we are to core drill through finished soil-cement to install steel posts. The Wyoming standard drawings show an 8” x 24” soil plate on the box beam guardrail post. Will this anchor be required when we core drill through the soil cement and Biaxial Geogrid, since we then must backfill the core drilled hole with grouting mortar. Please furnish the diameter of the core hole required in either case, anchor or no anchor. Also, will the torn Biaxial Geogrid be an issue?*

Response: Regarding the post detail, see the response to Question 19. Regarding the biaxial geogrid, drawing 449-D-1610 will be revised to increase the distance from the end of the biaxial geogrid to the outer edge of the embankment from 2 feet to 3 feet so the holes for the guardrail posts will not penetrate the geogrid.

40. *Sheets 449-D-16333 thru 449-D-1639 show Box beam guardrail locations on relocated access road. The plans do not specify type of End Treatments required. Could you please furnish the number of each type required? The lengths shown on these sheets total more than the quantity shown in the proposal. The Wyoming DOT pays for length of rail and also for each type of end. Do the lengths shown include the ends? How do we get paid?*

Response: As stated in the response to Question 20, WYDOT End Anchorage Type I will be added to Section 34 71 15 – Box Beam Guardrail. See the drawings for guardrail end locations to determine the number of end anchorages. Section 34 71 15 – Box Beam Guardrail will be revised to clarify that the measurement for payment for box beam guardrail includes the end anchorages.

- | 32 17 20 Painted Traffic Lines
- 32 31 20 Pipe Gates
- 32 91 19 Placing Topsoil
- 32 91 60 Topsoil Erosion Control Matting
- 32 92 20 Seeding

DIVISION 33 - UTILITIES

- 33 05 16 Relocating Existing Utility Box and Hydraulic Lines
- 33 41 12 Dam Road Drains and Bridge Drains
- 33 41 16 Left Abutment Surface Drain
- 33 42 16 Concrete Pipe Culverts
- | 33 70 10 Relocation of Existing Utility Line

DIVISION 34 - TRANSPORTATION

- 34 71 13 Removing Existing Guardrail
- 34 71 15 Box Beam Guardrail
- 34 71 19 Delineators

DIVISION 35 THRU DIVISION 50 – NOT USED

DIVISION 51 - INFORMATION AVAILABLE TO OFFERORS

- 51 00 00 Information Available to Offerors
- 51 00 10 Climatic Conditions
- 51 00 20 Reservoir Water Surface Elevation Data
- 51 00 30 Earth Materials Distribution Diagram
- 51 00 40 Seepage and Piezometer Data
- 51 00 50 Traffic Count Data

DIVISION 52 - DRAWINGS

- 52 00 00 Drawings

DIVISION 53 - GEOLOGIC INVESTIGATIONS AND RECORDS

- 53 10 00 Geologic Investigations
- 53 20 00 Records of Geologic and Subsurface Investigations

APPENDIX A

APPENDIX B – CONTRACTOR SAFETY PROGRAM, RSHS

SECTION E – Inspection and Acceptance

- E.1 Material and Workmanship E-1
- E.2 Inspection of Construction..... E-1
- E.3 Warranty of Construction E-2

SECTION F – Deliveries or Performance

- F.1 Commencement, Prosecution and Completion of Work Alternate I F-1
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SECTION B – SUPPLIES OR SERVICES AND PRICES

GLENDO DAM MODIFICATION OREGON TRAIL DIVISION - GLENDU UNIT - WYOMING PICK - SLOAN MISSOURI BASIN PROGRAM

B.1 SCHEDULE

- (a) Offers will be considered for award on the following schedule, but no offer will be considered for award on only a part of the schedule.
- (b) All offers are subject to the terms and conditions of this solicitation.
- (c) The quantities in the schedule are estimated quantities for comparison of offers only, and except as provided in the contract clause at FAR 52.211-18, Variation in Estimated Quantity, no claim shall be made against the Government for overruns or underruns.
- (d) See the contract clause at WBR 1452.232-81, Payment for Mobilization and Preparatory Work, for CLIN 1.
- (e) Definitions:
 - (1) CLIN – Contract Line Item Number

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
1	WBR 1452.23 2-81	Mobilization and preparatory work	For the lump sum of		\$
2	01 55 20	Traffic Control	For the lump sum of		\$
3	03 15 12	6-Inch PVC Waterstops	930 lin ft		\$
4	03 15 12	9-Inch PVC Waterstops	2,400 lin ft		\$
5	03 15 14	PVC Retrofit Waterstop	11 lin ft		\$
6	03 15 17	Hydrophilic Strip Waterstop	100 lin ft		\$
7	03 20 00	Concrete Reinforcement	645,000 lb		\$

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
8	03 20 30	Drilling Holes for No. 11 Anchor Bars and Cement Grouting Bars in Place	350 lin ft		\$
9	03 20 30	Drilling Holes for No. 8 Anchor Bars and Cement Grouting Bars in Place	3,800 lin ft		\$
10	03 20 30	Drilling Holes for No. 6 Anchor Bars and Cement Grouting Bars in Place	24 lin ft		\$
11	03 30 00	Concrete in Auxiliary Spillway Ogee Crest Structure	3,700 yd ³		\$
12	03 30 00	Concrete in Auxiliary Spillway Gravity End Section and Block	560 yd ³		\$
13	03 30 00	Concrete in Auxiliary Spillway Cutoff Wall and Slab	195 yd ³		\$
14	03 30 00	Concrete in Auxiliary Spillway Sidewall and Parapet Wall	96 yd ³		\$
15	03 30 00	Concrete in Service Spillway Headwall Structure	430 yd ³		\$
16	03 30 00	Concrete in Dam Raise Parapet Wall	1,670 yd ³		\$
17	03 30 00	Cementitious Materials for Cast-In-Place Concrete	1,800 tons		\$
18	03 37 10	Shotcrete	780 yd ³		\$
19	03 37 21	Dental Concrete	2,700 ft ³		\$
20	03 37 70	Roller-Compacted Concrete Test Section	For the lump sum of		\$

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
21	03 37 70	Roller-Compacted Concrete	18,500 yd ³		\$
22	03 37 70	Cement for Roller-Compacted Concrete	1,300 tons		\$
23	03 37 70	Pozzolan for Roller-Compacted Concrete	2,000 tons		\$
24	03 37 70	Leveling Concrete	110 yd ³		\$
25	03 37 70	Crack Inducers	6,200 lin ft		\$
26	05 50 00	Miscellaneous Metalwork	For the lump sum of		\$
27	10 14 51	Removing and Reinstalling Existing Glendo Park and Dam Signs	For the lump sum of		\$
28	10 14 52	Removing and Reinstalling Existing Traffic Signs	For the lump sum of		\$
29	10 14 53	New Post-Mounted Traffic Signs	For the lump sum of		\$
30	10 14 54	New Post-Mounted Restricted Area Signs	For the lump sum of		\$
31	31 02 10	Water for Dust Abatement	For the lump sum of		\$
32	31 03 33	Removal and Control of Water	For the lump sum of		\$
33	31 09 10	Abandoning Existing Piezometers	For the lump sum of		\$
34	31 09 22	Protecting and Extending Existing Piezometers	For the lump sum of		\$
35	31 09 26	Embankment Measurement Points	18 points		\$
36	31 11 00	Clearing and Grubbing	150 acres		\$

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
37	31 14 10	Stripping	112,000 yd ³		\$
38	31 14 13	Permanent Stockpile Sand Filter, Zone 2A Material	100 yd ³		\$
39	31 14 13	Permanent Stockpile Shell, Zone 3A Material	150 yd ³		\$
40	31 23 15	Relocating Existing Riprap	11,000 yd ³		\$
41	31 23 16	Excavation of Existing Dam Embankment	37,000 yd ³		\$
42	31 23 16	Excavation of Existing Dike Embankments	43,000 yd ³		\$
43	31 23 16	Scaling and Excavation of Abutments	600 yd ³		\$
44	31 23 17	Excavation for Auxiliary Spillway	240,000 yd ³		\$
45	31 23 18	Excavation from Borrow	282,000 yd ³		\$
46	31 23 22	Constructing and Removing Temporary Bypass Roadway	For the lump sum of		\$
47	31 23 70	Soil-Cement Test Section	For the lump sum of		\$
48	31 23 70	Soil-Cement	7,200 yd ³		\$
49	31 23 70	Cementitious Materials for Soil-Cement	1,700 tons		\$
50	31 24 13	Zone 1A Material	33,000 yd ³		\$
51	31 24 14	Sand Filter, Zone 2A Material	7,600 yd ³		\$
52	31 24 15	Shell, Zone 3A Material	67,000 yd ³		\$

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
53	31 24 20	Excavation for Glendo Park Road Relocation	136,000 yd ³		\$
54	31 24 20	Embankments for Glendo Park Road Relocation	150,000 yd ³		\$
55	31 24 22	Cofferdam	For the lump sum of		\$
56	31 32 13	Slush Grouting	200 ft ³		\$
57	31 33 13	Drill Setups for Rock Bolts	7 drill setups		\$
58	31 33 13	Drill Setups for Rock Anchors	34 drill setups		\$
59	31 33 13	Permanent Rock Bolts	140 lin ft		\$
60	31 33 13	Permanent Rock Anchors	435 lin ft		\$
61	31 33 13	Split Sets	7 each		\$
62	31 33 13	Double Twist Hexagonal Mesh Netting (DTHMN)	1,400 yd ²		\$
63	31 33 13	Weep Holes	18 weep holes		\$
64	31 33 13	Rock Bolt Performance Tests	1 tests		\$
65	31 34 19	Geogrid Reinforcement	27,000 yd ²		\$
66	31 37 00	Riprap	32,000 yd ³		\$
67	31 37 10	Downstream Slope Protection	9,100 yd ³		\$
68	32 10 16	Removing Existing Roadway Pavement and Base Course	15,000 lin ft		\$
69	32 12 22	Aggregate Base Course	14,000 tons		\$
70	32 12 22	Asphaltic Concrete Pavement	6,600 tons		\$
71	32 15 10	Gravel Surfacing	3,800 yd ³		\$

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
72	32 17 20	Painted Traffic Lines	40,000 lin ft		\$
73		Deleted			
74	32 31 20	Pipe Gates	For the lump sum of		\$
75	32 91 19	Placing Topsoil	670,000 yd ²		\$
76	32 91 60	Topsoil Erosion Control Matting	51,000 yd ²		\$
77	32 92 20	Seeding	140 acres		\$
78	33 05 16	Relocating Existing Utility Box and Hydraulic Lines	For the lump sum of		\$
79	33 41 12	Dam Road Drains	13 dam road drains		\$
80	33 41 12	Bridge Drains	2 bridge drains		\$
81	33 41 16	Left Abutment Surface Drain	For the lump sum of		\$
82	33 42 16	24-Inch-Diameter Concrete Pipe Culvert	252 lin ft		\$
83	33 42 16	36-Inch-Diameter Concrete Pipe Culvert	140 lin ft		\$
84	33 42 16	48-Inch-Diameter Concrete Pipe Culvert	670 lin ft		\$
84A	33 70 10	Coordination of Existing Utility Line Relocation	For the lump sum of		\$
85	34 71 13	Removing Existing Guardrail	9,800 lin ft		\$
86	34 71 15	Box Beam Guardrail	10,500 lin ft		\$

SCHEDULE

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
87	34 71 19	Delineators	6 delineators		\$

TOTAL FOR SCHEDULE \$ _____

END OF SCHEDULE

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SECTION 01 14 00
WORK RESTRICTIONS

PART 1 GENERAL

MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices offered in the schedule for other items of work.

1.02 WORK RESTRICTIONS

- A. Public access to Glendo State Park will be allowed throughout construction. This includes use of public roads and campground areas. The Contractor shall maintain public use of roadways throughout the park area and access to and from campgrounds during construction.
- B. The following holidays are peak recreation/visitation periods to Glendo State Park by the public. The Contractor shall restrict heavy construction equipment on public roads on these holiday periods from impacting public access to Glendo State Park and campgrounds. The holiday period includes the weekends on either side (before and after) of the actual holiday.
1. Memorial Day Weekend.
 2. Fourth of July.
 3. Labor Day Weekend.
- C. Except for mixing and placing roller compacted concrete, the Contractor shall not work prior to 6:00 am and after 8:00 pm from May 15 through September 15 unless otherwise approved by COR.
- D. The existing marina will remain open to the public during construction. The Contractor shall maintain public access to and from the marina during construction.
- E. Construction of the dam and dike shall not begin until September 15 and shall be completed by May 15. No portion of the dam and dikes shall be lowered between May 15 and September 15.
- F. Detour onto the temporary bypass road on Glendo Dam shall not occur until after September 15 and shall be discontinued prior to May 15. Traffic shall be routed back onto the dam two lane road on the top of the dam.
- G. The permanent Glendo Park road relocation shall be available for use by public traffic prior to excavation of the auxiliary spillway. If the Contractor elects to route public traffic onto the roadway prior to the placement of the asphaltic concrete pavement, the

- Contractor shall submit a plan for approval which details the composition, placement, maintenance, and removal of the temporary roadway surfacing and the protection of the roadway embankment and base course.
- H. The auxiliary spillway shall be completed and operational prior to excavation of the existing dam and dike, placement of fill for the dam and dike raises, and the service spillway modification.
- I. Construction of the existing service spillway modifications shall be scheduled after the auxiliary spillway and embankment dam raise are complete.
- J. The Contractor shall minimize the use of access park roads to the greatest extent possible.
- K. The spillway rock plug shall be removed only after September 15 and prior to May 15 or as directed by COR.
- L. Borrow materials for the dam and dike shall be identified and stockpiled after September 15 and prior to May 15.
- M. Contractor shall not allow employees to live in the Glendo State Park or use Glendo State Park facilities.
- N. The total Glendo State Park visitors in 2009 were estimated to be 222,700. Traffic counts at Glendo State Park entrance between May and November are included in Section 51 00 50 –Traffic Count Data. The Contractor shall anticipate public traffic backups at the entrance to Glendo State Park and at other locations and how this may affect scheduled work and traffic control plan.
- O. Temporary road closures shall not exceed 30 minutes.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

Table 01 33 00A – List of Submittals

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Respon- sible code	No. of sets to be sent to: *	
					CO	COR
31 24 12-1	Embankment Construction	Embankment construction plan	At least 35 days before beginning embankment construction	COR	0	6
31 24 14-1	Sand Filter, Zone 2A Material	Certification and laboratory test results	At least 35 days before furnishing sand filter, zone 2A material	COR	0	6
31 32 13-1	Slush Grouting	Placing plan	At least 35 days before beginning slush grouting	COR	0	6
31 32 36-1	Geomembrane Composite	Geomembrane composite installation plan	At least 35 days before furnishing geomembrane composite	COR	0	6
31 32 36-2	Geomembrane Composite	Qualification of manufacturer and fabricator	At least 35 days before furnishing geomembrane composite	COR	0	6
31 32 36-3	Geomembrane Composite	Notice of start of production	Within 2 days of start of production	COR	0	6
31 32 36-4	Geomembrane Composite	Certifications	At least 35 days before furnishing geomembrane composite	COR	0	6
31 32 36-5	Geomembrane Composite	Samples	At least 35 days before furnishing geomembrane composite	COR	0	6
31 32 36-6	Geomembrane Composite	Surveyed As-built drawings	Within 2 days of completing installation	COR	0	6
31 33 13-1	Rock Reinforcement	Resumes	At least 35 days before beginning rock bolt or rock anchor installation	COR	0	6
31 33 13-2	Rock Reinforcement	Manufacturer's product data	At least 35 days before beginning rock bolt or rock anchor installation	COR	0	6
31 33 13-3	Rock Reinforcement	Rock bolt, rock anchor, and split set certification	At least 35 days before beginning rock bolt or rock anchor or split set installation	COR	0	6
31 33 13-4	Rock Reinforcement	Rock bolt, rock anchor, and split set plan	At least 35 days before beginning rock bolt or rock anchor or split set installation	COR	0	6
31 33 13-5	Rock Reinforcement	Testing information	At least 35 days before beginning rock bolt or rock anchor installation	COR	0	6
31 33 13-6	Rock Reinforcement	Cement grout material approval data	At least 35 days before beginning rock bolt or rock anchor installation	COR	0	6

Table 01 33 00A – List of Submittals

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Respon- sible code	No. of sets to be sent to: *	
					CO	COR
31 33 13-7	Rock Reinforcement	Scaling plan	At least 35 days before beginning scaling	COR	0	6
31 34 19-1	Geogrids	Manufacturer's product data and certification	At least 28 days before furnishing geogrids	COR	0	6
31 34 19-2	Geogrids	Sample	At least 28 days before furnishing geogrids	COR	0	2
31 34 19-3	Geogrids	Installation instructions	At least 28 days before furnishing geogrids	COR	0	6
31 34 19-4	Geogrids	Installation plan	At least 28 days before furnishing geogrids	COR	0	6
31 34 19-5	Geogrids	Shipping and quality control data	With shipment	COR	0	6
31 34 19-6	Geogrids	Installation certification, warranty, and as-built drawings	Within 14 days after installation	COR	0	6
31 37 00-1	Riprap	Approval data and test results	At least 28 days before furnishing riprap	COR	0	6
32 12 22-1	Asphaltic Concrete Pavement	Mix design data	At least 28 days before placing asphaltic concrete pavement	COR	0	6
32 12 22-2	Asphaltic Concrete Pavement	Certifications	At least 28 days before placing asphaltic concrete pavement	COR	0	6
32 15 10-1	Gravel Surfacing	Certification	At least 28 days before furnishing gravel surfacing	COR	0	6
32 17 20-1	Painted Traffic Lines	Certification	At least 28 days before beginning painted traffic lines and markings work	COR	0	6
32 17 20-2	Painted Traffic Lines	Instructions	At least 28 days before beginning painted traffic lines and markings work	COR	0	6
32 91 60-1	Topsoil Erosion Control Matting	Sample	At least 28 days before furnishing topsoil erosion control matting	COR	0	2
32 91 60-2	Topsoil erosion Control Matting	Manufacturer's Information	At least 28 days before furnishing topsoil erosion control matting	COR	0	6
32 91 60-3	Topsoil Erosion Control Matting	Installation Plan	At least 28 days before furnishing topsoil erosion control matting	COR	0	6
32 92 20-1	Seeding	Seeding plan	At least 28 days before beginning seeding work	COR	0	6

Table 01 33 00A – List of Submittals

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Respon- sible code	No. of sets to be sent to: *	
					CO	COR
32 92 20-2	Seeding	Certifications	At least 28 days before furnishing seed	COR	0	6
33 05 16-1	Relocating Existing Utility Box and Hydraulic Lines	Removal and relocation plan	At least 28 days before beginning removal	COR	0	6
33 41 12-1	Dam Road Drains and Bridge Drains	Dam road drains manufacturer's information	At least 28 days before furnishing dam road drains	COR	0	6
33 41 12-2	Dam Road Drains and Bridge Drains	Bridge drains manufacturer's information	At least 28 days before furnishing bridge drains	COR	0	6
33 41 12-3	Dam Road Drains and Bridge Drains	Drain pipes installation plan	At least 28 days before furnishing dam road drains or bridge drains	COR	0	6
33 41 16-1	Left Abutment Surface Drain	Certifications	At least 35 days before beginning furnishing left abutment surface drain features	COR	0	6
33 41 16-2	Left Abutment Surface Drain	Conceptual plan and profile	At least 35 days before beginning furnishing left abutment surface drain features	COR	0	6
33 41 16-3	Left Abutment Surface drain	Pipe alignment	At least 35 days before beginning furnishing left abutment surface drain features	COR	0	6
33 42 16-1	Concrete Pipe Culverts	Certifications	At least 28 days before furnishing reinforced concrete pipe culverts	COR	0	6
33 70 10-1	Relocation of Existing Utility Line	Existing Utility Line Relocation Plans and Drawings	At least 28 days before relocation of existing utility line begins	COR	0	6

END OF SECTION

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SECTION 01 35 20

SAFETY AND HEALTH

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Cost:
1. Include the cost of complying with this section in the prices offered in the schedule for other items of work.

1.02 REFERENCE STANDARDS

- A. Bureau of Reclamation (USBR)
1. RSHS-2009 Reclamation Safety and Health Standards
 - a. Available on the Internet at:
<http://www.usbr.gov/ssle/safety/RSHS/rshs.html>.
 2. FIST 1-1 (2002) Hazardous Energy Control Program
 - a. Available on the Internet at:
www.usbr.gov/power/data/fist_pub.html
- B. Occupational Safety and Health Administration (OSHA)
1. 29 CFR Part 1910 Occupational Safety and Health Standards
 2. 29 CFR Part 1926 Safety and Health Regulations for Construction
 3. Available on the Internet at www.osha.gov.

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 - Submittals.
- B. RSN 01 35 20-1, Safety Program:
1. Submit a comprehensive, job-specific safety and health program in accordance with Section 01 33 00 – Submittals and in accordance with the requirements of Section 3.3 of the Reclamation Safety and Health Standards (RSHS).
 2. The Safety Program will not be accepted for review by the COR unless it addresses, in order, lettered and numbered per Appendix B of the RSHS, a comprehensive narrative for each applicable item in the outline.
 3. Generic company safety programs are not acceptable. The Safety Program must be site specific for this contract.

4. The Contractor's Safety Program must be submitted and accepted by Reclamation prior to commencing onsite work, including mobilization.
5. The Safety Program Statement of Responsibility must state that "the Contractor is responsible for ensuring that all work will be in compliance with the Federal Regulations, State Regulation, Reclamation Safety and Health Standards and these specifications."
6. The Safety and Health Program shall include but not be limited to the following items:
 - a. Confined Space Entry
 - 1) Include a detailed plan for operations that require employees to enter confined spaces.
 - a) Include training, safe work procedures, ventilation and equipment.
 - b) Include methods, engineering controls, personal protective equipment, ventilation plans and air monitoring of the confined space.
 - 2) Include proof of training for all contractor employees involved with confined space entry work.
 - a) References: OSHA 29 CFR 1910.146 and RSHS Section 14.
 - b. Hazardous Energy Control (lockout/tagout)
 - 1) Verify the OSHA-required lockout/tagout training in accordance with 29 CFR 1910.147, 29 CFR 1910.269 and RSHS Section 15.
 - c. Electrical Safety
 - 1) Include safe work procedures at the site, training, grounding techniques, use of mobile generators, construction lighting, power tool safety, and use of personal protective equipment.
 - 2) Comply with RSHS Section 12, NFPA 70 E, 29 CFR 1910.147, 29 CFR 1926.Subpart K.
 - d. Hearing Conservation
 - 1) Include a task- and site-specific hearing conservation plan as specified in 29 CFR 1910.95, and the RSHS.
 - 2) Identify the brand and type of hearing protection and verify that workers are in a Hearing Conservation Program.
 - e. Personal Protective Equipment (PPE)
 - 1) Include a detailed plan for each task that specifies which personal protective equipment shall be used for all construction activities. For example: noise, heat, cold, hand protection, foot protection,

- 3) Due to the nature of the work, procedures need to be specific to the type of work being conducted such as rope-supported work rescue, scaffolding, trenching, heavy equipment, hoisting/crane emergencies.
- n. Hot Work and Fire Prevention
- 1) Include a plan to address hazards associated with hot work including cutting, welding, torch, and plasma operations. Include safe work procedures, engineering controls and personal protective equipment to be used to prevent fires and employee exposure to harmful substances produced during the hot work process. 29 CFR 1926. Subpart J, the RSHS and these specifications.
 - 2) This plan shall detail fire watch and range fire issues. Where outside emergency fire services are utilized the Contractor shall coordinate an onsite visit with the Inspector to verify that the local fire department can provide the service and equipment needed in a timely manner.
- o. Construction and Public Traffic Control
- 1) Provide a detailed traffic control plan in accordance with Section 01 55 20 – Traffic Control.
 - 2) The plan shall detail the safe coordination of construction and public traffic throughout the project including details on traffic control equipment, flaggers, barricades, markers, signage, lighting for traffic control equipment, lighting for work at night, road dust control, temporary road engineering, maintenance and removal.
- p. Exposure Assessment
- 1) Include an exposure monitoring plan to address monitoring for airborne hazards associated with the work including: drilling rock, drilling concrete, concrete saw cutting, demolishing concrete, grinding/cutting/welding, and batching concrete or a plan to place workers at risk in respiratory protection to prevent exposure from silica, chromium, welding fume and coatings.
 - 2) Where exposure monitoring is conducted, it shall be conducted by an industrial hygienist at the site.
 - 3) The plan shall detail equipment specifications, substance (s) to be sampled for, equipment calibration information, name of person conducting sampling, type and location of sampling (personal or area), collection media specifications, flow rates and duration of samples.
 - 4) The plan must include laboratory information including name, address and phone number of lab. The lab must be AIHA certified. The method of analysis must also be included.

- q. Scaffolding Safety and Design
 - 1) Include a scaffolding plan indicating what type of scaffolding will be used at the site and provide drawings, design specifications, manufacturer information, fall protection procedures and falling object protection.
 - 2) This plan shall be designed by a qualified person as described in 29 CFR 1926. Subpart L and RSHS 13.2.
 - 3) Identify the competent person for scaffolding operations.
- r. Concrete Batching, Mixing, Hauling, Pumping, Drilling, Compacting and Placement
 - 1) Include a plan detailing practices, procedures, engineering controls, and personal protective equipment to protect workers from the concrete dusts (silica), chromium in Portland cement and any/all chemical additives in the concrete.
- C. RSN 01 35 20-2, Monthly accident summary report:
 - 1. Form 7-2218 or other acceptable form in accordance with paragraph 3.8 of RSHS.
 - 2. Submit on the first day of every month.
- D. RSN 01 35 20-3, Training certificates and other Qualifications:
Submit training qualifications for the following:
 - 1. Qualifications for all riggers.
 - 2. Crane Operator Qualifications:
 - a. Certifications for all crane and hoist operators. This certification must consist of 24 hours of formal training, testing and proficiency evaluation within a 3-year period.
 - b. Medical Qualifications to operate a crane in accordance with RSHS Section 19.5.
 - 3. First Aid/CPR certifications for onsite supervisor, safety professional and at least 3 other designated Contractor personnel at the site.
 - 4. Rope-Supported Work training certificates for Contractor rope team. Climbing team shall consist of at least 3 qualified workers. Training shall be in accordance with RSHS Section 16.
 - 5. Fall protection and prevention training certifications for employees who work in elevated areas or otherwise require the use of fall arrest systems and other fall protection systems.
 - 6. Qualifications, resume and certifications of employee who will design the fall protection systems for the work and prepare the fall protection plan.

SECTION 01 35 22

FIRST AID

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Cost:
 - 1. Include in prices offered in the schedule for other items of work.

1.02 REFERENCE

- A. Bureau of Reclamation (USBR)
 - 1. RSHS-2009 Reclamation Safety and Health Standards

1.03 SERVICE

- A. First-aid and medical facilities: In accordance with section 5 of RSHS.
- B. Conform to most stringent requirement in cases of conflict between requirements of this section and requirements of RSHS.
- C. Do not perform onsite work until first aid plans have been submitted, approved by the CO, and implemented on site.

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 - Submittals.
- B. RSN 01 35 22-1, Medical Facilities Plan:
 - 1. Describe facilities for providing medical attention for injured or disabled employees.
 - 2. Include onsite emergency facilities and ambulance service.
- C. RSN 01 35 22-2, Certificate:
 - 1. Ambulance operator's qualifications to render first aid and operate ambulance in a competent manner.
 - 2. Emergency Medical Technician qualifications.

1.05 EMERGENCY MEDICAL TECHNICIAN (EMT)

- A. Provide the services of a qualified full-time Emergency Medical Technician (EMT).

- B. Shall be onsite during construction activities.
- C. The EMT may perform other duties, acceptable to the contracting Officer's Representative, that do not interfere with the ability to provide prompt medical services.
- D. A qualified registered nurse or paramedic may be substituted for the EMT.

1.06 AMBULANCE SERVICE

- A. Arrange for dependable ambulance service in accordance with RSHS, paragraph 5.4.
- B. On site ambulance not required.
- C. Ambulance:
 - 1. Inspected and approved for intended use by State or Federal regulatory agency having jurisdiction, or equivalent entity.
 - 2. Arrange for additional ambulance inspections as deemed necessary by regulatory agency, or as directed by the CO.
- D. Ambulance operators: Certified to render first aid/CPR and competent to operate vehicle.

1.07 AVAILABILITY

- A. Make facilities and services available for providing emergency aid to employees, subcontractor employees, and Government employees injured on job.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 35 30
CONTRACTOR'S ONSITE SAFETY PERSONNEL

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Cost:
1. Include the cost of complying with this section in the prices offered in the schedule for other items of work.

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 - Submittals.
- B. RSN 01 35 30-1, Qualifications:
1. Include resume, description of safety responsibilities, and copies of certifications of the individual proposed as safety professional for approval prior to employment.
- C. RSN 01 35 30-2, Safety Inspection Reports:
1. Include a list of noted deficiencies, their abatement dates, and follow-up action for all jobsite activities.
 2. Base inspection report on findings of jobsite walk-through with Government personnel.

1.03 QUALIFICATIONS

- A. Contractor's Onsite Safety and Health Professional
1. The Contractor shall identify a full-time Onsite Safety and Health Professional that is acceptable to Reclamation.
- B. Safety and Health Professional:
1. The individual shall be qualified by virtue of education, training, certification, and experience in which professional status in the safety field has been established.
 2. The Onsite Safety and Health Professional shall have at least five years experience, acceptable to Reclamation, including expertise in excavation, trenching, hoisting, crane operations, heavy hauling, drilling, roadwork, traffic control, concrete removal/pumping/placement/batching.
 3. The Contractor Onsite Safety and Health Professional shall have no other duties.

1.04 APPLICATION

- A. Designate an employee as the Contractor's Onsite Safety and Health Professional prior to the start of construction.
1. The Onsite Safety and Health Professional's job shall be hazard recognition, control and accident prevention.
 2. The Onsite Safety and Health Professional shall be at the worksite at all times during work activities and at the actual locations where the work is taking place.
 3. Duties include, but are not limited to the following:
 - a. Before start of construction, identify existing and predictable unsanitary, hazardous, or dangerous conditions.
 - b. Recommend controls for observed hazards or predicted hazards
 - c. Approve the site-specific Contractor safety and health program prior to submittal to Reclamation. The Onsite Safety and Health Professional will be responsible for coordinating all elements contained in the Contractor safety and health program and these specifications.
 - d. Lead weekly safety meetings at the jobsite.
 - e. Provide training for contractor employees as needed and if qualified to do so.
 - f. May act as the qualified person for designing fall protection, excavation and scaffolding systems in accordance with the regulatory standards.
 - g. Assemble, review and sign each Job Hazard Analysis (JHA).
 - h. Conduct weekly safety inspections of worksites, materials, and equipment.
 - i. Prepare detailed weekly safety inspection reports: safety reports must include the following; noted deficiencies, digital photos, abatement dates and follow up action. Submit reports electronically to the COR.
 - j. The Safety Professional shall have the authority to immediately halt unsafe work operations until corrected.
 4. The Safety Professional shall provide direct oversight and assemble a detailed report of all incident reviews, near-misses, accidents and emergency response or rescue actions.

1.05 QUALITY ASSURANCE

- A. Contractor's Onsite Safety and Health Representative:
1. The effectiveness of the Contractor's Onsite Safety and Health Professional in prosecuting the safety program will be subject to continued review and approval by the Contracting Officer.

2. Should the Contractor's safety effort be considered inadequate, the Contracting Officer has the option to require the Contractor to replace the full-time qualified Safety Professional, at no additional cost to the Government.

B. Safety Program:

1. The effectiveness of the Contractor's Safety Program will be subject to continued review and approval by the CO.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 51 00

TEMPORARY UTILITIES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Cost:
 - 1. Include in prices offered in the schedule for other items of work.

1.02 REFERENCE STANDARDS

- A. Institute of Electrical and Electronics Engineers (IEEE)
 - 1. IEEE C2-2007 National Electrical Safety Code (NESC)

1.03 SUBMITTALS

- A. RSN 01 51 00-1, Diversion Facility and Water Withdrawal Information.
 - 1. Location and capacity of diversion facility.
 - 2. Points of withdrawal for construction water.

1.04 TEMPORARY ELECTRICITY

- A. Contact local utility to obtain required electric power for construction.
- B. Provide generators, transmission lines, distribution circuits, transformers, and other electrical equipment and facilities required for obtaining power and distributing power to points of use.
- C. Comply with IEEE C2 clearances and spacing for temporary communications and supply lines.
- D. Remove temporary equipment and facilities upon completion of work under this contract.

1.05 TEMPORARY WATER

- A. Water from Glendo Reservoir will be available for construction purposes.
 - 1. Make arrangements with and obtain permit from Area Manager, Bureau of Reclamation, Wyoming Area Office, 705 Pendell Boulevard, Mills, WY 82644, (307) 261-5671, for use of this water source.
 - 2. The Government will designate locations from which water may be obtained.
 - 3. Contractor shall contract and pay for water obtained from this source. Contact Area Manager, Bureau of Reclamation, Wyoming Area Office, 705 Pendell

Boulevard, Mills, WY 82644, (307) 261-5671, for contract and payment information for this water source.

- 4. Rate for water obtained from this source is \$75.00 per acre-foot for a minimum purchase of 8 acre-feet.
- B. Use water which meets specified requirements for water used in concrete, soil-cement, grouting, and other permanent work.
- C. Meter all water withdrawn from the reservoir.
- D. Provide means of conveying water to points of use.
- E. Remove temporary equipment and facilities upon completion of work under this contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

Monitoring Device device, Temperature Monitoring Device placement locations and intended temperature monitoring plan.

4. Detail as necessary to show location, sequence, and date of concrete placements scheduled for each item.
 - a. Identify how sequencing of adjacent placements will be determined.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Furnish batch ticket with each batch of concrete in accordance with ASTM C 94.
 1. Deliver ticket to COR at jobsite during batch delivery.

PART 2 PRODUCTS

2.01 CEMENTITIOUS MATERIALS

- A. Cementitious materials:
 1. Concrete other than ogee, gravity end section, cutoff wall and slab concrete: Specified portland cement plus 20 percent plus or minus 5 percent by weight specified pozzolan.
 2. Ogee, gravity end section, block, cutoff wall and slab concrete: Specified portland cement plus 30 percent plus or minus 5 percent by weight specified pozzolan.
- B. Portland cement:
 1. ASTM C 150, Type V.
 2. Meet equivalent alkalis requirements of ASTM C 150 - Table 2.
 3. Meet false-set requirements of ASTM C 150 - Table 4.
- C. Pozzolan:
 1. ASTM C 618, Class F, except,
 - a. Sulfur trioxide, maximum: 4.0 percent.
 - b. Loss on ignition, maximum: 2.5 percent.
 - c. Test for effectiveness in controlling alkali-silica reaction under optional physical requirements in Table 2 of ASTM C 618. Use low-alkali cement for test.
 - d. Does not decrease sulfate resistance of concrete by use of pozzolan.
 - 1) Demonstrate pozzolan will have an “R” factor less than 2.5.
 - 2) $R = (C-5)/F$

- 3) C: Calcium oxide content of pozzolan in percent determined in accordance with ASTM C 114.
- 4) F: Ferric oxide content of pozzolan in percent determined in accordance with ASTM C 114.

2.02 WATER

- A. ASTM C 1602, including optional requirements of Table 2.

2.03 AGGREGATE MATERIALS

- A. Assure aggregates are not deleteriously alkali-silica reactive (ASR).
 - 1. Test for the potential for deleterious alkali-silica reaction of coarse and fine aggregate shall be made in accordance with ASTM C 1260.
 - a. Expansion at 16 days does not exceed 0.10 percent: the coarse or fine aggregates will be acceptable.
 - b. Expansion at 16 days is greater than 0.10 percent, but less than 0.20 percent, aggregates are acceptable if petrographic examination shows the expansion is not due to ASR.
 - 1) Otherwise, test specimens according to ASTM C 1567 using all components (e.g. coarse aggregate, fine aggregate, cementitious materials, and/or specific reactivity reducing chemicals) in the proportions proposed for the mixture design and retest.
 - a) Expansion of the proposed mixture design test specimens, tested in accordance with ASTM C 1567 does not exceed 0.10 percent at 16 days from casting, the aggregates will be acceptable.
 - b) Expansion of the proposed mixture design test specimens is greater than 0.10 percent at 16 days, the aggregates will not be acceptable unless adjustments to the mixture design can reduce the expansion to less than 0.10 percent at 16 days, or new aggregates shall be evaluated and tested, or testing by ASTM C 1293 indicates the aggregates will not experience deleterious expansion.
 - c. Expansion at 16 days is greater than 0.20 percent
 - 1) Aggregate will not be acceptable, unless a combination of cement, aggregate, and supplemental cementitious materials is found to effectively mitigate the expansion using ASTM C 1567.
 - 2. Substitution of ASTM C 1293 test results for ASTM C 1260 test results
 - a. Acceptable but the average concrete prism expansion shall be less than 0.04 percent at one year

SECTION 03 37 10

SHOTCRETE

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Shotcrete:

1. Measurement: Volume of concrete measured to limits and to thickness shown on drawings or as directed by COR.
2. Payment: Cubic yard unit price offered in the schedule.
 - a. Includes welded wire fabric for shotcrete.

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM)

- | | | |
|-----|------------------------|--|
| 1. | ASTM C 33/C 33M-08 | Concrete Aggregates |
| 2. | ASTM C 42/C 42M-04 | Obtaining and Testing Drilled Cores and Sawed Beams of Concrete |
| 3. | ASTM C 94/C 94M-09a | Ready-Mixed Concrete |
| 4. | ASTM C 114-09b | Chemical Analysis of Hydraulic Cement |
| 5. | ASTM C 128-07a | Specific Gravity and Absorption of Coarse Aggregate |
| 6. | ASTM C 150/C 150M-09 | Portland Cement |
| 7. | ASTM C 171-07 | Sheet Materials for Curing Concrete |
| 8. | ASTM C 260-06 | Air-Entraining Admixtures for Concrete |
| 9. | ASTM C 494/C 494M-08a | Chemical Admixtures for Concrete |
| 10. | ASTM C 566-97(2004) | Total Evaporable Moisture Content of Aggregate by Drying |
| 11. | ASTM C 618-08a | Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete |
| 12. | ASTM C 1017/C 1017M-07 | Chemical Admixtures for Use in Producing Flowing Concrete |
| 13. | ASTM C 1140-03a | Preparing and Testing Specimens from Shotcrete Test Panels |

14. ASTM C 1315-08 Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete
 15. ASTM C 1602/C 1602M-06 Mixing Water Used in the Production of Hydraulic Cement Concrete
- B. American Concrete Institute
1. ACI 506R-05 Guide to Shotcrete
- C. Bureau of Reclamation (USBR)
1. USBR M-47 Standard Specifications for Repair of Concrete, August 1996 (Appendix A of “Guide to Concrete Repair” available at http://www.usbr.gov/pmts/materials_lab/repairs/guide.pdf)

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 - Submittals.
- B. RSN 03 37 10-1, Shotcrete Mix Design:
1. Include material proportions.
 2. Manufacturer’s certification and test reports for each cementitious material, aggregate source, and admixture.
- C. RSN 03 37 10-2, Specific Operating Procedure:
1. Include engineering controls, protective clothing, eye protection, respiratory protection and air sampling as necessary to check control program effectiveness.
 2. List of personnel and certification of Nozzlemen.
- D. RSN 03 37 10-3, Test Panel Results:
1. Prepare a test panel on site for each proposed mix, shooting orientation, color, and nozzlemen prior to construction.
 - a. Prepare and test panels in accordance with ASTM C 1140.
 - 1) Minimum panel size: 18-inches by 18-inches by 4-inches thick.
 - 2) Provide reinforcement of the same size and grade specified.
 - 3) Extract cores in accordance with ASTM C 42.
 - 4) Test three cores each at 7 and 28 days for compressive strength.
 - 5) Provide three cores containing reinforcing steel to the COR for bar encapsulation verification.
 - b. Submit complete test results.

1.04 DEFINITIONS

- A. Wet-mix process:
1. Consists of thoroughly mixing all ingredients except accelerator if used, feeding mixture into delivery equipment, delivering the mixture by positive displacement or compressed air to the nozzle, and then jetting the mixture from the nozzle at high velocity onto the surface.
 2. Accelerator added to the mixture at the nozzle.

1.05 QUALIFICATIONS

- A. Certified nozzlemen, ACI Shotcrete Nozzleman Certification.
- B. If selected shotcreting system fails to provide satisfactory in-place shotcrete as determined by the COR, Contractor shall change processes, provide a redemonstration of the nozzleman's proficiency, or provide a new certified nozzleman.

PART 2 PRODUCTS

2.01 CEMENTITIOUS MATERIALS

- A. Cementitious materials option:
1. Specified portland cement plus 20 percent plus or minus 5 percent by weight specified pozzolan.
- B. Portland cement:
1. ASTM C 150, Type V.
 2. Meet equivalent alkalis requirements of ASTM C 150 - Table 2.
 3. Meet false-set requirements of ASTM C 150 - Table 4.
- C. Pozzolan:
1. ASTM C 618, Class F, except,
 - a. Sulfur trioxide, maximum: 4.0 percent.
 - b. Loss on ignition, maximum: 2.5 percent.
 - c. Test for effectiveness in controlling alkali-silica reaction under optional physical requirements in Table 2 of ASTM C 618. Use low-alkali cement for test.
 - d. Does not decrease sulfate resistance of concrete by use of pozzolan.
 - 1) Demonstrate pozzolan will have an "R" factor less than 2.5.
 - 2) $R = (C-5)/F$

- 3) C: Calcium oxide content of pozzolan in percent determined in accordance with ASTM C 114.
- 4) F: Ferric oxide content of pozzolan in percent determined in accordance with ASTM C 114.

2.02 WATER

- A. ASTM C 1602, including optional requirements of Table 2.

2.03 AGGREGATE MATERIALS

- A. Fine aggregate: ASTM C 33.
- B. Coarse Aggregate: ACI 506, Grading No. 2 from Table 1.1.

2.04 ADMIXTURES

- A. Air-Entraining Admixture:
 - 1. ASTM C 260.
 - 2. Use a neutralized vinsol resin formulation for air-entraining admixture used with Type F or G chemical admixture.
- B. Chemical Admixtures:
 - 1. Allowable Chemical Admixtures:
 - a. ASTM C 494, Type A, D, F, or G.
 - b. ASTM C 1017, Type I or II.
 - c. ASTM C 494, Type C and E, provided they do not contain chlorides.
 - 2. Do not use chemical admixtures which introduce more than 1/10 of 1 percent chloride, by weight.
 - 3. Do not use powder accelerator in wet-mix process.
 - 4. Water-reducing, set-controlling admixtures may be used.

2.05 CURING MATERIALS

- A. Water: ASTM C 1602, including optional requirements of Table 2.
- B. Curing Compound: ASTM C 1315 Class A.
- C. Polyethylene Film: ASTM C 171, white opaque.

2.06 MIX

- A. Minimum cementitious materials content: 658 pounds per cubic yard as discharged from nozzle.
- B. Compressive strength:
 - 1. 600 psi at 8 hours age and 4,000 psi at 28 days based on 3- by 3-inch cores.
- C. Consistency:
 - 1. Wet-mix process: Maximum 3-inch slump.

2.07 BATCHING AND MIXING

- A. Wet-mix process:
 - 1. Manufacture in accordance with ASTM C 94.

2.08 WELDED WIRE FABRIC

- A. In accordance with Section 03 20 00 – Concrete Reinforcement.

PART 3 EXECUTION

3.01 PLACING

- A. Use an air compressor of ample capacity to maintain a supply of clean, dry air adequate for maintaining a uniform nozzle velocity.
- B. Place shotcrete by pneumatic pressure from discharge nozzle held about 2 to 5 feet from the surface in a stream as nearly normal as possible to surface being covered.
- C. Rapidly gyrate nozzle while placing.
- D. Place in layers having a thickness that will assure complete adherence of shotcrete to the surface. Assure adequate bond is achieved between successive layers.
- E. Remove and replace any shotcrete which sloughs or separates as determined by the COR.
- F. Prevent formation of sand pockets in shotcrete. If sand pockets form, remove immediately and replace with suitable shotcrete at Contractor's expense.
- G. Do not use rebound as shotcrete aggregate. Remove and dispose of rebound accumulations.
- H. Placing temperature: Between 50 and 90 degrees F.
- I. Do not place on frozen surfaces.

- J. Keep applied shotcrete at temperature greater than 50 degrees for a minimum of 3 days immediately following application.
- K. If using accelerating hardener, do not exceed shotcrete temperature of 80 degrees F.
- L. Furnish and install welded wire fabric in shotcrete as shown on drawings.
 - 1. Welded wire fabric in accordance with Section 03 20 00 – Concrete Reinforcement.

3.02 CURING

- A. Water Curing:
 - 1. Keep concrete surface wet for 14 days, minimum, from time concrete has attained sufficient set to prevent detrimental effects to surface.
 - 2. Cure methods:
 - a. Water-saturated material.
 - b. System of perforated pipes, mechanical sprinklers, or porous hose.
 - c. Other methods which will keep surfaces wet.
 - d. Subject to approval by the COR.
- B. Curing with Curing Compound:
 - 1. Apply to concrete surface to provide a water-retaining film. Reapply as necessary to maintain a continuous, water-retaining film on surface for 28 days.
 - 2. Thoroughly mix compound and spray apply in one coat to provide a continuous, uniform film over surface.
 - 3. Do not exceed coverage rate of 150 square feet per gallon. Decrease coverage rate on rough surfaces as necessary to obtain required continuous film.
 - 4. Ensure ample coverage on edges, corners, and rough surfaces.
 - 5. Spray equipment and equipment performance will be subject to approval by the COR. Repair or replace equipment when directed by the COR.
 - 6. Use personnel qualified in using specified spray technique, as determined by the COR, to perform application.
- C. Polyethylene Film Curing:
 - 1. Thoroughly moisten concrete surface by lightly spraying with water as soon as concrete has hardened sufficiently to prevent damage.
 - 2. Completely cover concrete surface with polyethylene film to provide an airtight, water-retaining film over entire surface.
 - 3. Lap edges of polyethylene sheets to seal adjacent sheets.

4. Place tightly against concrete surfaces at extreme edge of curing area.
5. Secure film to withstand wind and prevent circulation of air inside curing film.
6. Keep surface covered for 14 days, minimum.

3.03 CONTRACTOR FIELD QUALITY TESTING

- A. Field test panels: Prepare up to ten test panels during shotcreting operations at locations and times requested by the COR.
 1. Prepare and test panels in accordance with ASTM C 1140.
 - a. Minimum panel size: 18-inches by 18-inches by 4-inches thick.
 - b. Provide welded wire fabric of the same size and grade specified.
 - c. Extract cores in accordance with ASTM C 42.
 - d. Test three cores each at 7 days and 28 days for compressive strength.
 - e. Provide three cores containing reinforcing steel to the COR for bar encapsulation verification.
 2. Make testing reports available to the COR.

END OF SECTION

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H. Quality testing:

1. The Government will test batched and placed RCC in accordance with the articles “Batch Plant Quality Testing” and “Field Quality Testing.”
2. The Contractor shall extract diamond-drilled, 6-inch diameter cores from RCC test section.
 - a. Drill a minimum of eight 5-foot-deep holes.
 - b. Drill cores at 7 days after final placement.
 - c. Use a 5-foot-long core barrel for each drill hole.
 - d. The Government will examine drilled cores to evaluate methods and quality of RCC construction.
 - e. Fill drill holes with grout.

1.07 SEQUENCING

- A. Do not proceed with RCC construction until test section has been evaluated and accepted by COR.
- B. The COR will issue notification of final evaluation of the test section and corrective measures required within 21 days of beginning construction of RCC
- C. Make necessary changes to RCC methods and equipment before beginning construction of RCC.

PART 2 PRODUCTS

2.01 CEMENTITIOUS MATERIALS

- A. Cementitious materials: Portland cement plus pozzolan.
- B. Portland cement:
 1. ASTM C 150, Type V, in addition:
 - a. Meet equivalent alkalis requirements of ASTM C 150, Table 2.
 - b. Meet false-set requirements of ASTM C 150, Table 4.
 - c. Sum of tricalcium silicate and tricalcium aluminate: 58 percent, maximum.
 - d. Free from lumps and other deleterious matter and otherwise undamaged.
 2. Pozzolan:
 - a. ASTM C 618, class F, except:
 - 1) Sulfur trioxide, maximum: 4.0 percent.

- 2) Loss on ignition, maximum: 2.5 percent.
- b. Does not decrease sulfate resistance of concrete by use of pozzolan.
 - 1) Demonstrate pozzolan will have an "R" factor less than 2.5.
 - 2) $R = (C-5)/F$
 - 3) C: Calcium oxide content of pozzolan in percent determined in accordance with ASTM C 114.
 - 4) F: Ferric oxide content of pozzolan in percent determined in accordance with ASTM C 114.
- C. Before an RCC placement is started, ensure that sufficient cementitious materials are in storage at RCC plant to complete 3 days of placement.

2.02 FINE AGGREGATE

- A. Source:
 - 1. From approved commercial source, with approval of source based on:
 - a. Previous testing and approval of source by Government. or
 - b. Preconstruction testing and approval.
 - 2. Approval of deposits does not constitute acceptance of specific materials taken from the deposits. The Contractor shall provide specified materials.
 - 3. Final acceptance of fine aggregate used in RCC will be based on samples taken at the RCC plant.
 - 4. Testing and approval:
 - a. Preconstruction testing and approval for fine aggregate obtained from a deposit not previously tested and approved by the Government:
 - 1) Assist the Government in collecting representative samples.
 - 2) Sample size: Approximately 200 pounds. Submit, for testing, to: Bureau of Reclamation, Attn 86-68180, Building 56, Entrance S-6, Denver Federal Center, Denver CO 80225-0007.
 - 3) Submit at least 60 days before the sand is required for use.
 - b. Testing at aggregate processing plant and batch plant:
 - 1) Government may test samples obtained during the aggregate processing and at batch plant.
 - 2) Provide facilities for procuring representative samples at the aggregate processing plant and at the RCC plant.
- B. Quality and grading for fine aggregate when batched; or for continuous flow plants for sand just prior to combining with other materials:

1. ASTM C 33, except:
 - a. Gradation:
 - 1) Percent passing No. 100 sieve: 0 to 12 percent.
 - 2) Percent passing No. 200 sieve: 0 to 10 percent
 - b. Predominantly natural sand, which may be supplemented with crushed sand to make up deficiencies in the natural sand gradings.
 - 1) Crushed sand particles are to be predominantly cubical in shape and free from flat or elongated particles.
 - 2) Crusher fines produced by a jaw crusher used other than as a primary crusher shall not be used in production of sand.
 - 3) Blend crushed sand uniformly with the natural sand by routing through sand classifier.
- C. Moisture content for sand, as batched:
 1. Uniform and stable moisture.
 2. Free moisture, maximum: 6 percent.
 3. Variations of moisture in sand as batched, maximum: 0.5 percent in 30 minutes.
- D. Stockpiles:
 1. Prior to placing RCC, stockpile on site at least one-half sand needed to complete the RCC construction.
 2. Protect sand stockpiles containing free water from freezing.
 - a. Screen out frozen materials prior to use to remove frozen particles.
 - b. Sand containing particles frozen together will be rejected.

2.03 COARSE AGGREGATE

- A. Source:
 1. From approved commercial source, with approval of source based on:
 - a. Previous testing and approval of source by Government, or
 - b. Preconstruction testing and approval.
 2. Approval of deposits does not constitute acceptance of specific materials taken from deposits. The Contractor shall provide specified materials.
 3. Final acceptance of aggregate used in RCC will be based on samples taken at the RCC plant.
 4. Testing and approval:

- a. Preconstruction testing and approval for coarse aggregate obtained from a deposit not previously tested and approved by the Government:
 - 1) Assist the Government in collecting representative samples for preconstruction testing and approval.
 - 2) Sample size:
 - a) Maximum size aggregate up to 1-inch: 200 pounds.
 - b) Maximum size aggregate greater than 1-inch: 200 pounds.
 - 3) Submit, for testing, to: Bureau of Reclamation, Attn 86-68180, Building 56, Entrance S-6, Denver Federal Center, Denver CO 80225-0007.
 - 4) Submit at least 60 days before the coarse aggregate is required for use.
 - b. Testing at aggregate processing plant and batch plant:
 - 1) Government may test samples obtained during the aggregate processing and at batch plant.
 - 2) Provide facilities for procuring representative samples at the aggregate processing plant and at the RCC plant.
- B. Quality and grading for coarse aggregate when batched, or for continuous flow plants for coarse aggregate just prior to combining with other materials.
- 1. Quality: ASTM C 33.
 - 2. Grading: ASTM C 33: Size No. 3 (2 to 1 inch) and Size No. 57 (1 inch to No.4).
- C. Material:
- 1. Crushed rock or a mixture of natural gravel and crushed rock. Do not use jaw crushers except as a primary crusher.
 - 2. At least 50 percent of aggregate faces shall be crushed.
 - 3. No more than 30 percent particles with a maximum to minimum dimension ratio of 3 to 1.
 - 4. Separate coarse aggregate into nominal sizes during aggregate production.
- D. Finish screening:
- 1. Locate finish screens so that screen vibration is not transmitted to batching bins or scales and does not affect accuracy of weighing equipment.
 - 2. Just prior to batching, wash coarse aggregate by pressure spraying.
 - a. Do not allow wash water to enter batching bins or weighing hoppers.

2. Consistency: Uniform from batch to batch.
 - a. Government will measure consistency with Vebe apparatus in accordance with ASTM C 1170, Method A.
 - 1) Vebe Time: 15 seconds plus or minus 5 seconds.
- C. Mix proportions:
 1. Designed by the Government and adjusted by the Government during work progress whenever need for such adjustment is indicated by results of testing of aggregates and RCC.
 2. Adjustments:
 - a. Mix proportions will be adjusted to produce RCC with suitable workability, consistency, impermeability, density, strength, and durability without using excessive cementitious materials.
 - b. Water:
 - 1) Water will be adjusted so that consistency of RCC allows compaction throughout specified lift thickness and exposed edges of the lift with minimal segregation or voids.
 - 2) Water will be adjusted to account for variations in consistency due to fluctuations in aggregate moisture content, aggregate grading, ambient temperature, or mixture temperature
 3. Starting mix proportions:
 - a. Estimated RCC mixture for beginning construction is shown in Table 03 37 70A - Initial Mix Proportions for RCC with Saturated Surface Dry Aggregates.

Table 03 37 70A – Initial Mix Proportions for RCC with Saturated Surface Dry Aggregates

INGREDIENT	QUANTITY
Cementitious materials	350 pounds per cubic yard RCC
Pozzolan	50 to 70 percent by weight of cementitious materials
Water	185 pounds per cubic yard RCC
Sand	1,550 pounds per cubic yard RCC
Coarse aggregate	1,950 pounds per cubic yard RCC
Admixtures: WRA	Manufacturer's recommended dosage

2.11 BATCHING AND MIXING EQUIPMENT

A. Equipment performance requirements:

1. Batching and mixing rated capacity, minimum: 300 cubic yards per hour.
2. Provide, maintain, and operate batching equipment to accurately measure and control the prescribed amounts of the various materials entering the mixers.
3. Maintain in a clean and freely operating condition.

B. Batch plants with separate batching and mixing operations:

1. Construct, maintain and operate equipment for conveying batched materials from weighing hoppers into the mixer to prevent spillage of batched materials and overlap of batches.
2. Interlocking controls:
 - a. Equip batch plant with automatic interlocking sequential batching controls.
 - b. Prevent starting new batch until weighing hoppers have been completely emptied of last batch and scales register zero weight.
 - c. Prevent RCC batches from entering mixers if mixers are not empty
3. Weighing and measuring equipment:
 - a. Equip with controls to provide a printout of individual batch weights.
 - b. Accuracy: 0.40 percent over the working range.
 - 1) Construction and accuracy of equipment: Conform to applicable requirements of NIST 44.
 - 2) Schedule and perform monthly static tests:
 - a) Ensure that operating performance of each scale and measuring device is accurate.
 - b) Supply standard test weights and other equipment to conduct tests.
 - c) Perform tests in the presence of a Government inspector, for approval.
 - d) Perform additional tests when requested by the Government.
 - e) Adjust, repair, or replace devices to meet specified accuracy.
 - c. Weighing units:
 - 1) Springless.

SECTION 31 09 10 ABANDONING EXISTING PIEZOMETERS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Abandoning Existing Piezometers:
 - 1. Payment: Lump sum price offered in the schedule.

1.02 REFERENCE STANDARDS

- A. ASTM International (ASTM)
 - 1. ASTM C 33/C 33M-08 Concrete Aggregates
 - 2. ASTM C 150/C 150M-09 Portland Cement
 - 3. ASTM C 1602/C 1602M-06 Mixing Water Used in the Production of Hydraulic Cement Concrete

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 – Submittals.
- B. RSN 31 09 10-1, Abandoning Existing Piezometers Plan.
 - 1. Include methods, plans, and sequence with excavation for abandoning existing piezometers.

1.04 PROJECT CONDITIONS

- A. Existing piezometers to be abandoned are located within the limits of the auxiliary spillway excavation.
- B. Existing piezometers to be abandoned are shown on the design drawings as PTP07-1 and PTP07-2. The existing piezometers to be abandoned are shown on the geology drawings as Drill Hole DH07-1 and Drill Hole DH07-5. Refer to Section 53 20 00 – Records of Geologic and Subsurface Investigations for logs of DH07-1 and DH07-5.
- C. Existing piezometers to be abandoned may be used by the Contractor to monitor water levels before excavating for auxiliary spillway.

PART 2 PRODUCTS

2.01 GROUT MATERIALS

- A. Portland cement:

1. ASTM C 150, Type II.
 2. Meet equivalent alkalies requirements of ASTM C 150 – Table 2.
 3. Meet false-set requirements of ASTM C 150 – Table 4.
- B. Water:
1. ASTM C 1602, including optional requirement of Table 2.
- C. Water/cement ratio: 1:1.

PART 3 EXECUTION

3.01 REMOVAL AND GROUTING

- A. Remove and grout existing piezometers in area of auxiliary spillway excavation.
- B. Remove existing piezometer casing pipes and grout each PVC standpipe before beginning excavation for auxiliary spillway.
- C. Locations of existing piezometers are shown on drawings.
- D. Remove existing piezometers in accordance with the following:
 1. Completely grout PVC standpipe of piezometers.
 2. Excavate and remove protective casing after grouting.
 3. Cut off grouted PVC standpipe flush with final excavation limits.

3.02 DISPOSAL

- A. Dispose of removed materials in accordance with Section 01 74 10 – Cleaning.

END OF SECTION

- a. Fast setting resin for rock bolts.
- b. Slow setting resin for rock bolts.

2.04 CEMENT GROUT FOR ENCAPSULATION

A. Portland Cement:

- 1. ASTM C150, Type II.

B. Water:

- 1. ASTM C 1602, including optional requirements of Table 2.

C. Allowable Chemical Admixtures:

- 1. High Range Water-Reducing Agent (HRWRA): ASTM C494, Type F.
- 2. Meyco Fix Flowcable manufactured by BASF Admixtures Inc., 23700 Chagrin Boulevard, Cleveland OH 44122 (216-839-7500); or equal, having following essential characteristics:
 - a. High water reducing.
 - b. Shrinkage compensating.
 - c. High early strengths.
- 3. Do not use chemical admixtures which contain more than 0.1 percent chloride, by weight.

D. Mix:

- 1. Water-cement ratio, maximum by volume, not greater than 0.7 to 1.
- 2. Results from tests performed with the HRWRA or Flowcable sample shall be used to determine the grout mix.
 - a. Use according to manufacturer's instructions
 - b. For HRWRA, dose at 0.5 percent to 1 percent by weight of cement.
 - c. If necessary, add no more than one-half of HRWRA to mix water before adding cement. Add rest of HRWRA after cement and water have been mixed.
 - d. If the use of HRWRA chosen by the Contractor is accompanied by abnormal setting of the fresh grout or if the HRWRA does not perform in accordance with these specifications, the Contractor shall furnish and use other brands of HRWRA until an acceptable admixture is found.
 - e. For Flowcable, proportions to be according to manufacturer's instructions.
- 3. Use of an accelerant is not allowed.
- 4. Weighing, mixing and placing of the grout to be performed only in the presence of the COR.

5. The COR will determine the usable time allowed before grout injection. Depending on water-reducing agent, usable time allowed before grout injection will vary.
 6. Discard batch if too much time has elapsed between mixing of the grout and injection, as determined by the COR.
- E. Equipment for Backfill Grouting:
1. All plant and equipment required to mix and pump the grout shall be furnished by the Contractor.
 2. The apparatus for mixing and placing grout, including circulating line and fittings, shall be of a type and size approved by the COR and shall be capable of effectively mixing and stirring the grout and forcing it into the grout holes or grout connections in a continuous, uninterrupted flow.
 3. Water supply to the mixer shall be adequate at all times to provide the required pumping rate.
 4. The grout mixing tank shall be cylindrical, mounted vertically, and shall be of the high-speed colloidal type equipped with a high-speed, diffuser-type centrifugal mixing pump operating at 1,500 to 2,000 revolutions per minute during mixing, that delivers grout at 30 pounds per square inch
 5. Water used for grout shall be accurately measured to one-tenth of a cubic foot, and error shall not exceed 1 percent.
 6. The return flow from the centrifugal mixing pump shall be directed tangentially into the vertically mounted cylindrical tank near the top to create a vortex. In addition to the grout mixer, a holdover mechanical agitator tank similar in volume to the mixer shall be provided.
 7. The grout shall be placed with a helical-screw, rotor-type pump that produces flow with minimum pulsation. The pump shall have a minimum capacity of 35 gallons per minute at a pressure of 200 pounds per square inch. The grout pump shall be connected directly to the holdover mechanical agitator tank. Pumps with holding hoppers and pumps with open-throat suction housings and suction housing hoppers are not acceptable. Pump rating curves and complete mixer details, including photographs of the proposed mixing equipment, shall be submitted to the COR 30 days prior to use.

PART 3 EXECUTION

3.01 GENERAL

- A. If the rock anchorage method for rock bolts or rock anchors selected by the Contractor fails to provide satisfactory anchorage or fails to support rock loads as determined by the COR, the Contractor will be required to change to another type or method of rock anchorage at Contractor's expense.

SECTION 32 17 20

PAINTED TRAFFIC LINES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Painted Traffic Lines:
 - 1. Measurement: Length of traffic lines actually made.
 - 2. Payment: Linear foot price offered in the schedule.
- B. Deleted
 - 1. Deleted
 - 2. Deleted

1.02 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. AASHTO M 248-91(2003) Ready-Mixed White and Yellow Traffic Paints
- B. Federal Highway Administration (FHWA)
 - 1. FHWA MUTCD Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 Edition with Revision No. 1, July 21, 2004
(<http://mutcd.fhwa.dot.gov>)

1.03 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 - Submittals.
- B. RSN 32 17 20-1, Certification:
 - 1. Manufacturer's certification that paint meets specified requirements.
- C. RSN 32 17 20-2, Instructions:
 - 1. Paint manufacturer's environmental, surface preparation, and application instructions.

1.04 AMBIENT CONDITIONS

- A. Apply when surface and weather conditions are favorable.
- B. Do not apply when air or surface temperature is below 40 degrees F.
- C. Comply with paint manufacturer's environmental restrictions.

PART 2 PRODUCTS

2.01 TRAFFIC PAINT

- A. AASHTO M 248, Type S, N, or F.
 - 1. Traffic paint to contain glass beads type 1 at 8 lb/gal of paint.
- B. Colors: White and yellow.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean and dry surface in accordance with paint manufacturer's instructions.

3.02 APPLICATION

- A. Apply standard lines in accordance with FHWA MUTCD.
- B. Apply paint at coverage rate of 100 square feet per gallon, maximum, in accordance with manufacturer's instructions.
- C. Apply with clean edges free of overspray and line width within plus or minus 1/4 inch of designated width.
- D. Apply retroreflective glass beads type 1 at a rate of 8 lb/gal of paint.

3.03 PROTECTION

- A. Protect lines from traffic and damage until dry.

END OF SECTION

SECTION 33 05 16

RELOCATING EXISTING UTILITY BOX AND HYDRAULIC LINES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Relocating Existing Utility Box and Hydraulic Lines:
 - 1. Payment: Lump sum price offered in the schedule.
- B. Existing utility box or existing hydraulic lines damaged by Contractor shall be replaced at Contractor's expense.

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 – Submittals.
- B. RSN 33 05 16-1, Removal and Relocation Plan.
 - 1. Describe methods, equipment, and sequence to be used for removing, storing, and relocating existing utility box and hydraulic lines. Describe plans for taking hydraulic system temporarily out of service, temporary installation to keep low flow outlet works in operation during construction, and reinstallation of system.

1.03 PROJECT CONDITIONS

- A. The concrete utility box (pump house) contains the hydraulic controls for the bulkhead gate for the low flow outlet works. The bulkhead gate is hydraulically operated using gasoline engine powered hydraulic pump stored at another location. Connections to the pump are made using hydraulic hoses in the utility box. The hydraulic pressure in the hydraulic lines is not known. Operating pressure to open the gate and to maintain the gate in the open position is 2,800 psi.
- B. A temporary installation shall be required to maintain hydraulic pressure in the system so that the bulkhead gate for the low level outlet works will remain open.
- C. Reinstallation or replacement of the existing guard plate on the service spillway is required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Reuse existing utility box and existing hydraulic lines to make relocation.

- B.** Replace damaged materials with new materials as determined by COR.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify with COR the existing utility box and extent of existing hydraulic lines to be removed and relocated.

3.02 REMOVAL

- A. Maintain the bulkhead gate in the full open position during construction.
- B. Drain and cap hydraulic lines at a location that is not affected by construction.
- C. Remove existing utility box, hydraulic lines, and metal guard plate affected by construction as approved by COR.
- D. Handle and store existing utility box and hydraulic lines so damage does not occur.
- E. Store existing utility box and hydraulic lines in location approved by COR.
- F. Outages of low flow outlet works shall not exceed 2 hours.
- G. Notify COR at least 2 weeks prior to outage.
- H. Perform outages in accordance with outage schedule approved by COR.

3.03 RELOCATING

- A. Relocate existing utility box and reconnect the hydraulic lines when dam raise construction is completed at location as directed by COR.
- B. Flush the hydraulic line and refill when the system is put back in operation.
- C. Reinstall or replace the existing guard plate on the service spillway as required.

END OF SECTION

SECTION 33 70 10

RELOCATION OF EXISTING UTILITY LINE

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Coordination of Existing Utility Line Relocation:
1. Payment: Lump sum price offered in the schedule.

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 – Submittals.
- B. RSN 33 70 10-1, Existing Utility Line Relocation Plans and Drawings.
1. Work plans, methods, and equipment to be used.
 2. Drawings showing alignment plans and pole locations of relocated existing utility line.

1.03 PROJECT CONDITIONS

- A. Existing 7.2 kV overhead utility line shown on drawings in the area of the relocated Glendo Park Road is owned and operated by Wheatland Rural Electric Association (WREA), who is responsible for relocating the line at their expense. Coordination is required by the Contractor with Wheatland Rural Electric Association for relocation of existing overhead utility line where required to avoid interference with the relocated Glendo Park Road.
- B. Point of contact for coordination of existing overhead utility line relocation is:
1. Mr. Jason Wright, Assistant Line Superintendent, Wheatland Rural Electric Association, P.O. Box 1209, 2154 South Road, Wheatland, WY 82201, wreajason@netcommander.com, 1-800-344-3351, 307-322-2125 (office), 307-331-1194 (cell), 307-322-5340 (fax).
- C. It is anticipated that some relocation activities may need to occur during construction of the road. Contractor may need to restrict work in areas where relocation activities are underway.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 NOTIFICATION

- A. Prior to beginning work on the Glendo Park Road relocation, facilitate a meeting at the site with WREA and the COR to discuss the conceptual alignment and pole locations for the relocated utility line. Incorporate results of meeting into RSN 33 70 10-1, Existing Utility Line Relocation Plans and Drawings.
- B. Notify WREA and the COR at least 7 days before any portion of the 7.2 kV overhead line needs to be relocated.

3.02 COORDINATION

- A. Coordinate with Wheatland Rural Electric Association for relocation of existing overhead utility line work where required.

3.03 RELOCATION

- A. Adhere to relocation plans of existing utility line in accordance with approved plan.
- B. Conform to requirements of Section 01 56 15 – Protection of Existing Utilities.
- C. Repair or replace any damaged existing utility line features with new features as approved by COR.

END OF SECTION

SECTION 34 71 13
REMOVING EXISTING GUARDRAIL

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

- A. Removing Existing Guardrail:
1. Measurement: Length of removed existing guardrail.
 2. Payment: Linear foot price offered in the schedule.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify with COR the portions of existing guardrail required to be removed.

3.02 PROTECTION

- A. Protect existing guardrail to remain in place.
- B. Repair or replace damage to existing guardrail that is to remain in place to the satisfaction of the COR at no additional cost to the Government.

3.03 REMOVAL

- A. Remove existing guardrail and posts at locations shown on drawings or as directed by COR.
- B. Removal methods and equipment used are subject to approval by COR.
- C. Do not reuse removed guardrail materials and posts.

3.04 DISPOSAL

- A. Removed guardrail materials shall become property of the Contractor and be removed from work site area in accordance with Section 01 74 10 – Cleaning.

END OF SECTION

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SECTION 34 71 15

BOX BEAM GUARDRAIL

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Box Beam Guardrail:

1. Measurement: Length of installed Box Beam Guardrail.
 - a. Includes lengths of end anchorages.
2. Payment: Linear foot price offered in the schedule.
 - a. Includes end anchorages, posts, anchor assemblies, and accessories for complete installation.

1.02 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO)

1. AASHTO M 180-00(2004) Corrugated Sheet Steel Beams for Highway Guardrail

B. ASTM International (ASTM)

1. ASTM A 36/A 36M-08 Carbon Structural Steel
2. ASTM A 500/A 500M-07 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

C. Wyoming Department of Transportation (WYDOT)

1. WYDOT Standard Specifications Standard Specifications for Road and Bridge Construction, 2003 Edition

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Mark each rail element in accordance with AASHTO M 180.
- B. Haul and handle to avoid damage.

PART 2 PRODUCTS

2.01 BOX BEAM BARRIER

- A. Steel rail element tubing conforming to WYDOT Specifications Section 813.3 and ASTM A 500 grade A or B.
 - 1. Galvanized in accordance with WYDOT Specifications Subsections 501.4.1.25 and 815.14.

2.02 STEEL POSTS

- 1. In accordance with ASTM A 36.

2.03 END ANCHORAGES

- A. End anchorages conforming to WYDOT Standard Specifications Section 813.5, End Anchorage Type I.

2.04 ACCESSORIES

- A. Bolts, nuts, and other hardware fittings for rail elements: AASHTO M 180.

2.05 GROUTING MORTAR

- A. In accordance with Section 03 62 20 – Grouting Mortar for Equipment and Metalwork.

PART 3 EXECUTION

3.01 INSTALLATION

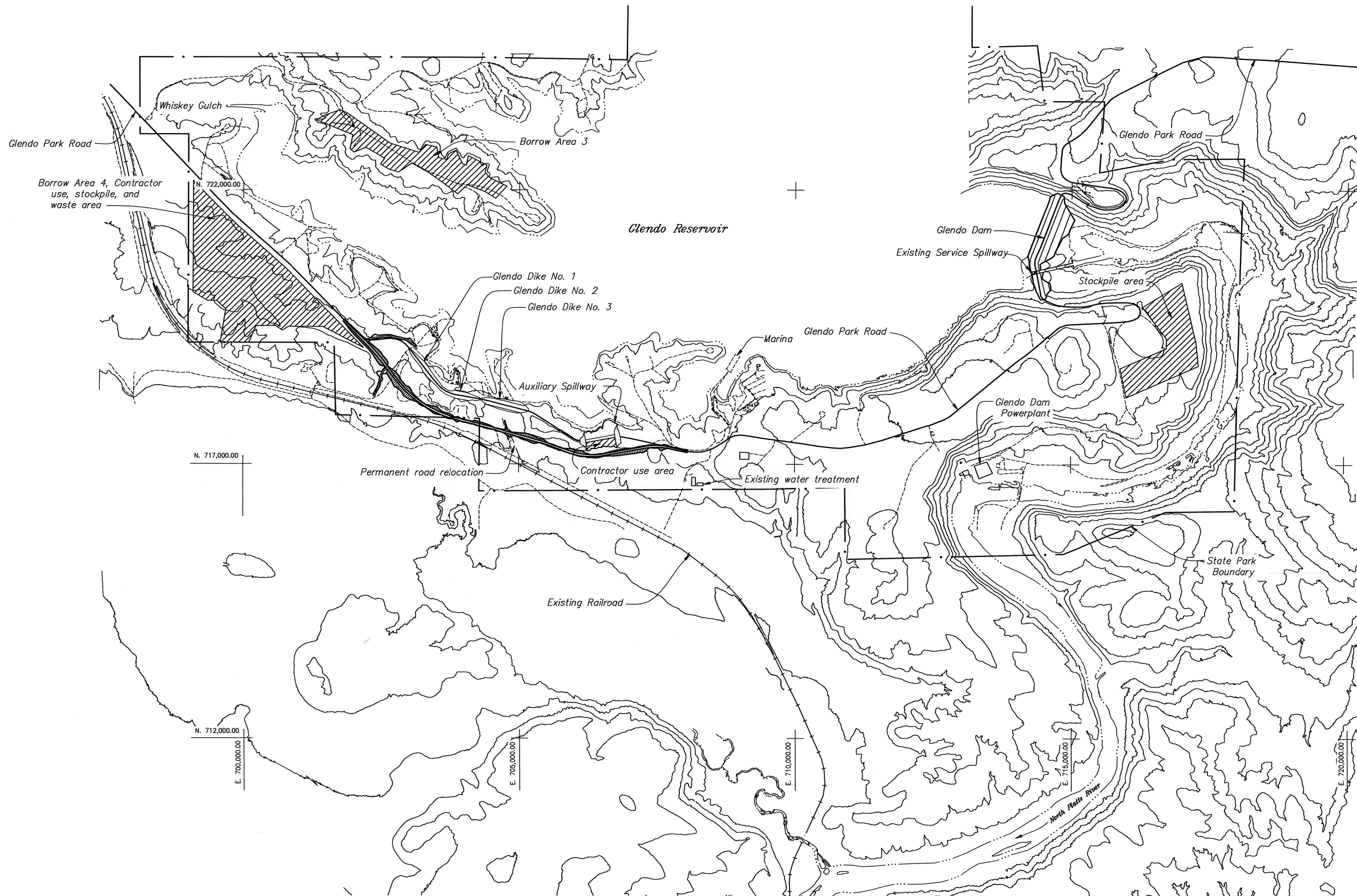
- A. Install Box Beam Guardrail at locations shown on drawings.
- B. Install steel posts, rail elements, end anchorages and accessories in accordance with details shown on drawings and in accordance with WYDOT Standard Specifications, Standard Plan 606-6.
 - 1. For installation in soil-cement core drill 10-inch diameter hole through finished soil-cement to install steel post without soil plate.
 - 2. Install steel posts plumb and in alignment.
 - 3. Provide shims or nonshrink grout as required to ensure proper alignment and plumbness.
 - 4. For installation in soil-cement, backfill core drilled holes with a self-leveling and self-compacting cementitious material with an unconfined compressive strength of 50 to 200 lb/in² at seven days.

3.02 REPAIR

- A. Repair abraided or damaged surfaces to the satisfaction of the COR in accordance with AASHTO M 180 at no additional cost to the Government.

END OF SECTION

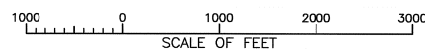
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NOTES

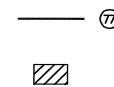
1. Waterline shown is at reservoir water surface El. 4626.9
2. Contour interval is 10 feet.
3. See drawing (449-600-584) for borrow and stockpile area coordinates.

PLAN



LEGEND

UNPAVED ROAD
PAVED ROAD
CONTRACTOR USE,
BORROW, STOCKPILE,
AND/OR WASTE AREA



REV NO 1	2010-07-23 D. Daniel Mares, P.E.	DELETED SPECIFIC BATCH PLANT LOCATION AND ADJUSTED CONTRACTOR USE AREA
 ALWAYS THINK SAFETY		
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION PICK - SLOAN MISSOURI BASIN PROGRAM OREGON TRAIL DIVISION - GLENDO UNIT - WYOMING GLENDO DAM MODIFICATION BORROW, STOCKPILE, WASTE AND CONTRACTOR USE AREAS		
DESIGNED - RYAN WOODRUFF, P.E.	CHECKED - JEFFERY WORMER	
DRAWN - DAVID A. MARTINEZ	TECH. APPR. - DANIEL D. MARES, P.E.	
APPROVED - JOHN H. LABOON, P.E. PEER REVIEWER - JOHN H. LABOON - MANAGER, WATERWAYS AND CONCRETE DAMS GROUP		
DENVER, COLORADO	2010-01-14	449-D-1603
SHEET 1 OF 1		

APRIL 8, 2010 12:39
DMARTINEZ

CAD FILENAME
DATE AND TIME PLOTTED
AutoCAD Rev. 17.28
PLOTTED BY
449-D-1603A.DWG

RECLAMATION
Managing Water in the West

D

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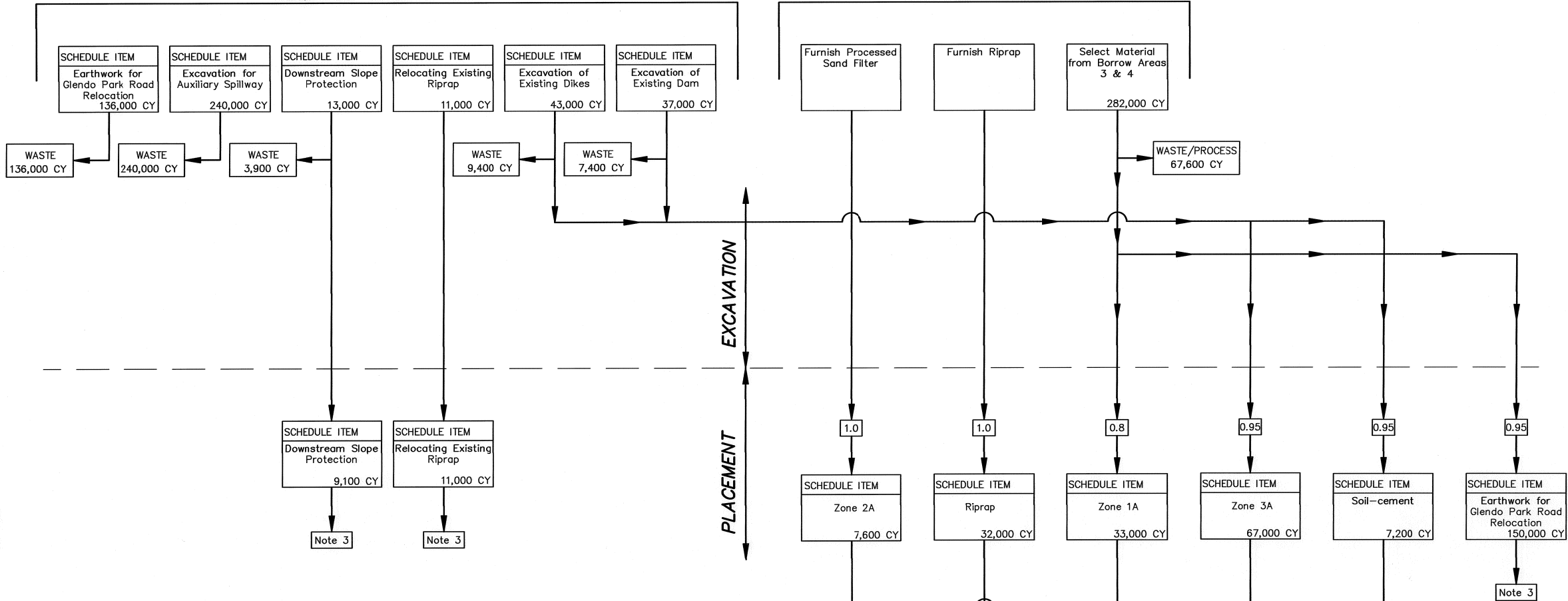
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B

A

REQUIRED EXCAVATION

BORROW SOURCES



Riprap

☒ Dike

SECTION OF DIKE
NOT TO SCALE

Riprap

☒ Dam

SECTION OF DAM
NOT TO SCALE

Soil cement

EXCAVATION

DESCRIPTIONS	SPEC. QUANTITIES (CY)	ACTUAL QUANTITIES (CY)
Earthwork for Glendo Park Road Relocation	136,000	
Excavation for Auxilliary Spillway	240,000	
Excavation of Existing Dikes	43,000	
Excavation of Existing Dam	37,000	
Downstream Slope Protection	13,000	
Relocating Existing Riprap	11,000	
Excavation from borrow	282,000	

PLACEMENT

DESCRIPTIONS	SPEC. QUANTITIES (CY)	ACTUAL QUANTITIES (CY)
Downstream Slope Protection	9,100	
Zone 2A, Sand Filter	7,600	
Riprap	32,000	
Zone 1A, Earthfill	33,000	
Zone 3A, Shell	67,000	
Earthwork for Glendo Park Road Relocation	150,000	
Soil-cement	7,200	

NOTES

1. This chart was prepared to show the contractor and anticipated sources of excavated material and their proposed distribution for the project. This distribution of material should be used only as a guide and should be modified during progress of the work to fit field conditions.
2. The waste quantities and shrinkage factors are estimates and may vary significantly.
3. Not shown on cross section.
4. Does not include permanent stockpiles of zone 2A and Zone 3A, see 31 14 13.

DAM AND DIKE RAISE
EMBANKMENT MATERIAL DESCRIPTIONS

- ①A) Compacted embankment containing a minimum 30% passing #200 sieve, a minimum plasticity index of 5, and a maximum liquid limit of 45, compacted to 6-inch thick layers and to 98% compaction.
- ②A) Processed sand filter compacted to 12-inch thick layers and to a maximum 85% relative density and a minimum 70% relative density.
- ③A) Shell material containing a maximum 15% passing #200 sieve, a maximum particle size of 6-inches and consisting of a selected mixture of sand, gravel, and cobbles compacted to 6-inch thick layers by a minimum of 4 passes of a vibratory roller or crawler-type tractor.

Riprap graded from 6-inch to 30-inch

REV NO 1 2010-07-26 Updated Material Quantities
D. C. Strickland, P.E. Jeffrey Warner, P.E.

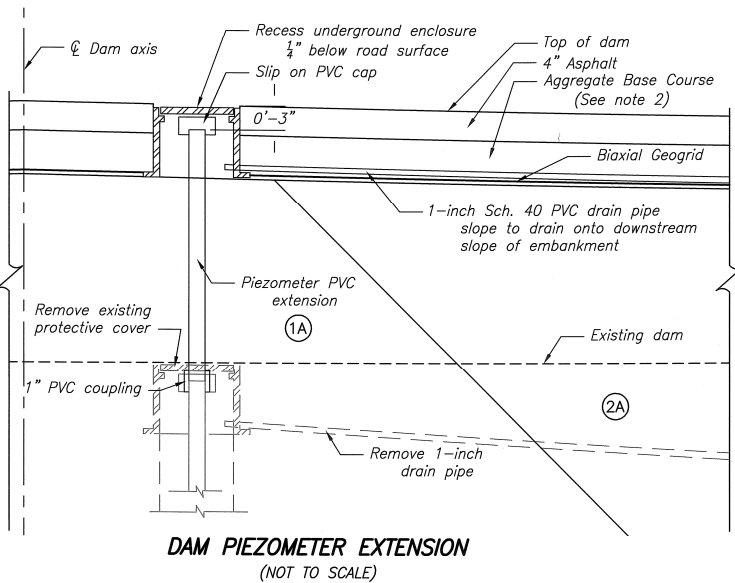
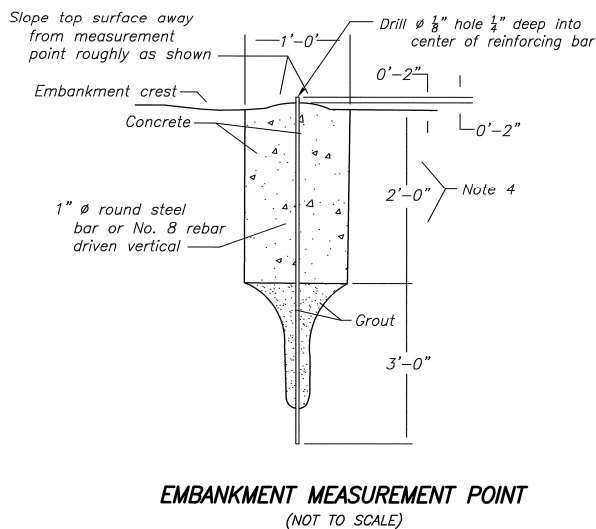
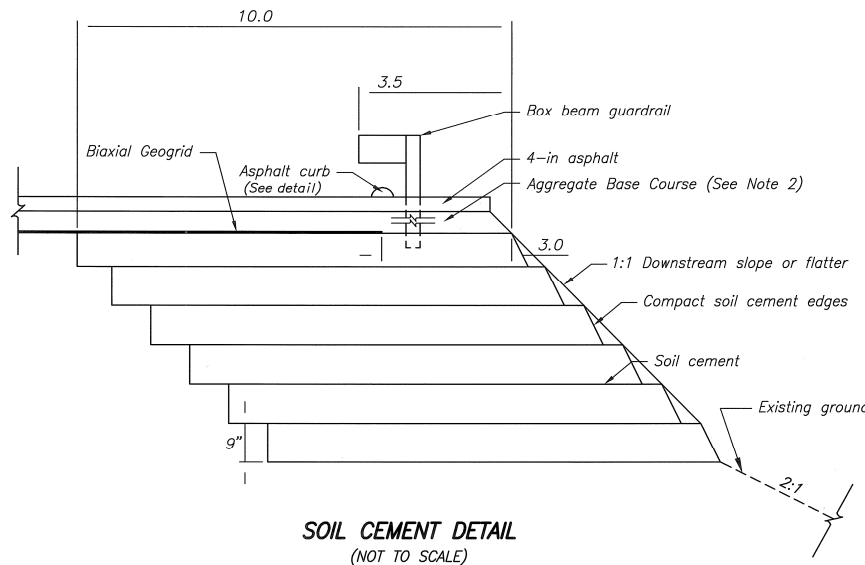
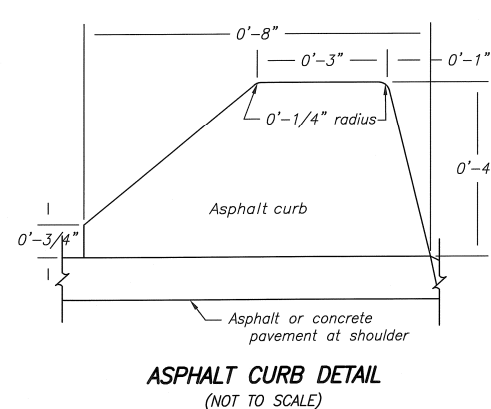
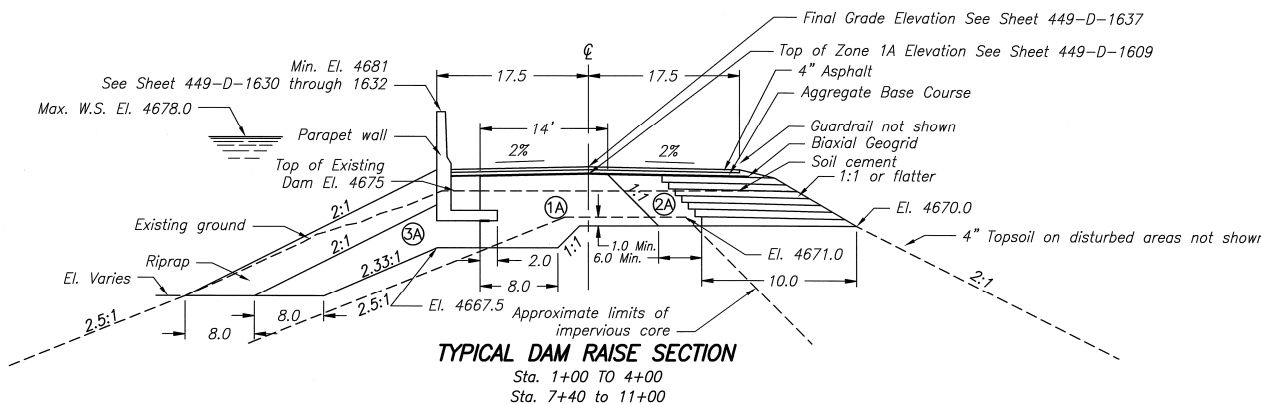
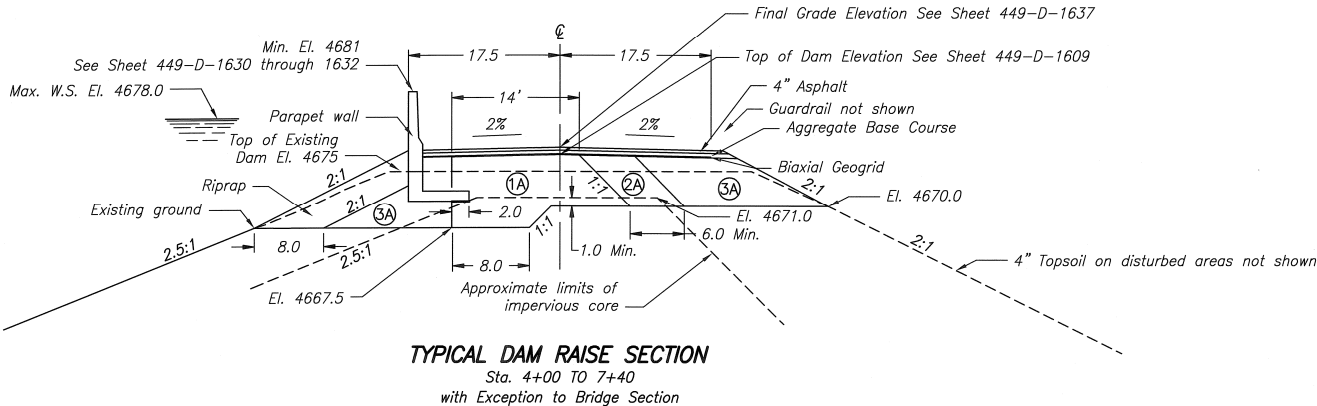
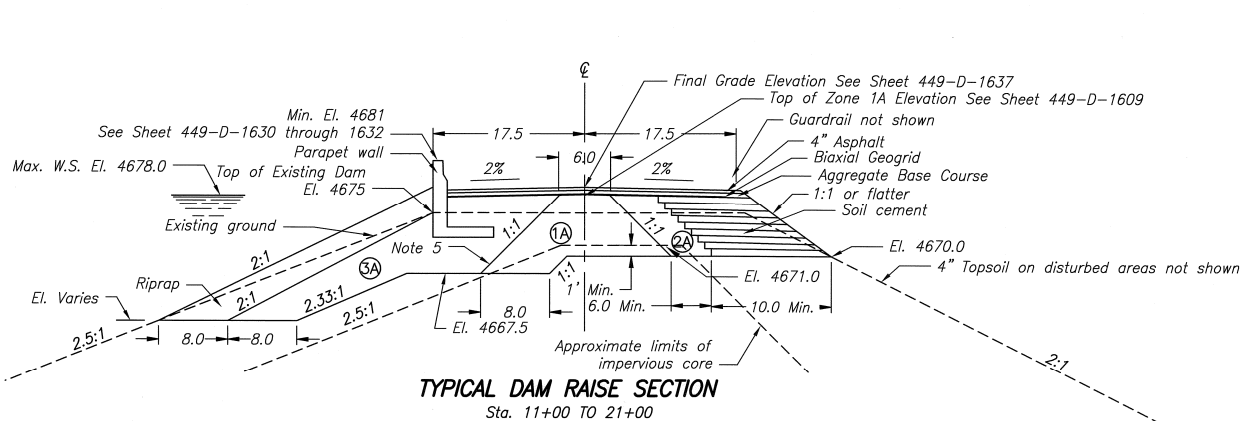
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PICK - SLOAN MISSOURI BASIN PROGRAM
OREGON TRAIL DIVISION - GLENDO UNIT - WYOMING
GLENDO DAM MODIFICATION

MATERIAL DISTRIBUTION CHART

DESIGNED -- Ryan Woodruff, P.E. -- CHECKED -- Jeffrey Warner, P.E. --
DRAWN -- Christopher Strickland -- TECH. APPR. -- Jeffrey Warner, P.E. --
APPROVED -- Robert L. Dewey, P.E. --
PEER REVIEWER -- ROBERT L. DEWEY -- MANAGER, GEOTECHNICAL SERVICES GROUP 1
DENVER, COLORADO 2010-04-01
SHEET 1 OF 1 449-D-1606

RECLAMATION
Managing Water in the West



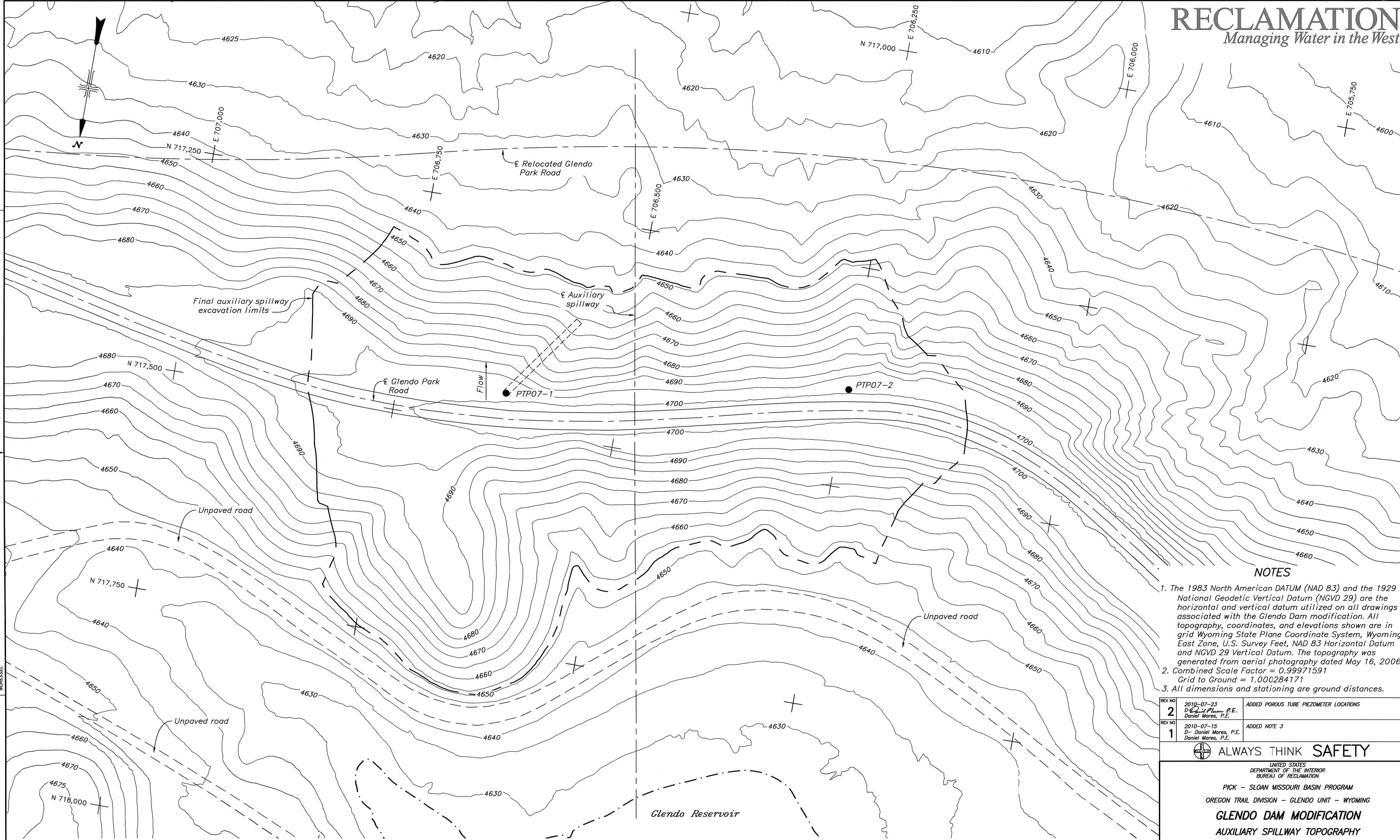
DAM RAISE
EMBANKMENT MATERIAL DESCRIPTIONS

- 1A Compacted embankment containing a minimum 30% passing #200 sieve, a minimum plasticity index of 5, and a maximum liquid limit of 45, compacted to 6-inch-thick layers and to 98% compaction.
- 2A Processed sand filter compacted to 12-inch-thick layers and to a maximum 85% relative density and a minimum 70% relative density.
- 3A Shell material containing a maximum 15% passing #200 sieve, a maximum particle size of 6 inches and consisting of a selected mixture of sand, gravel, and cobbles compacted to 6-inch-thick layers by a minimum of 4 passes of a vibratory roller or crawler-type tractor.

Riprap graded from 6-inch to 30-inch

- NOTES
- Place removed upstream slope protection from the existing dam on the upstream slope of dam in accordance with the specifications or as directed by the COR.
 - Aggregate Base Course approximately 6 inches thick but varies.
 - Elevations are centerline elevations of the core material (Zone 1A). For final grade see sheet 449-D-1637.
 - Upstream measurement points will be backfilled with embankment material. Downstream measurement points will be installed in soil cement.
 - Transition upstream Zone 1A to 1:1 slope between Sta. 11+00 to 12+00.

REV NO	2010-06-17	CHANGED BIAxIAL GEORGRID LENGTH.	
1	0	JEFFREY WORMER	
ALWAYS THINK SAFETY			
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION PICK - SLOAN MISSOURI BASIN PROGRAM OREGON TRAIL DIVISION - GLENDO UNIT - WYOMING			
GLENDO DAM MODIFICATION DAM RAISE SECTION AND DETAILS			
DESIGNED	RYAN WOODRUFF	CHECKED	JEFFREY WORMER
DRAWN	CHRISTOPHER STRICKLAND	TECH. APPR.	JEFFREY WORMER
APPROVED			
ROBERT L. DEWEY			
PEER REVIEWER - ROBERT L. DEWEY - WANNER, GEOTECHNICAL SERVICES GROUP 1			
DENVER, COLORADO			
SHEET 1 OF 1			
2010-04-01			
449-D-1610			



NOTES

1. The 1983 North American DATUM (NAD 83) and the 1929 National Geodetic Vertical Datum (NGVD 29) are the horizontal and vertical datum utilized on all drawings associated with the Glendo Dam modification. All topography, coordinates, and elevations shown are in grid Wyoming State Plane Coordinate System, Wyoming East Zone, U.S. Survey Feet, NAD 83 Horizontal Datum and NGVD 29 Vertical Datum. The topography was generated from aerial photography dated May 16, 2006.
2. Combined Scale Factor = 0.99971591
Grid to Ground = 1.000284171
3. All dimensions and stationing are ground distances.

REV NO 2	2010-07-23 D. Daniel Mares, P.E.	ADDED POROUS TUBE PIEZOMETER LOCATIONS
REV NO 1	2010-07-15 D. Daniel Mares, P.E.	ADDED NOTE 3

ALWAYS THINK SAFETY

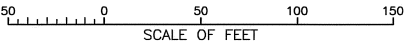
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

PICK - SLOAN MISSOURI BASIN PROGRAM
OREGON TRAIL DIVISION - GLENDON UNIT - WYOMING

GLENDON DAM MODIFICATION
AUXILIARY SPILLWAY TOPOGRAPHY

DESIGNED	WILLIAM DRESSEL	CHECKED	CARLY M. WEGHER
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APPROVED	JOHN H. LABOON, P.E.		
PEER REVIEWER	JOHN H. LABOON - MANAGER, WATERWAYS AND CONCRETE DAMS GROUP		
DENVER, COLORADO	2010-02-26		449-D-1618
	SHEET 1 OF 1		

PLAN - AUXILIARY SPILLWAY TOPOGRAPHY



CAD FILENAME
DATE AND TIME PLOTTED
PLOTTER
449-D-1618-GRID.DWG
JULY 23, 2010 13:50
W. DRESSEL

RECLAMATION

Managing Water in the West

D

C

B

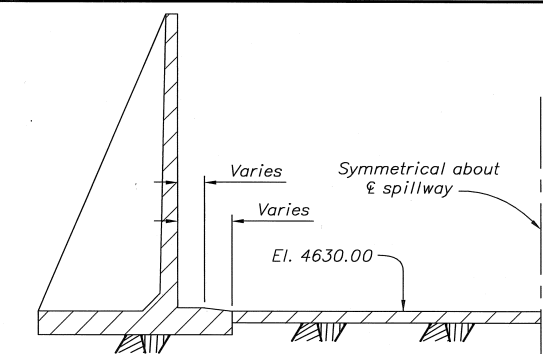
A

D

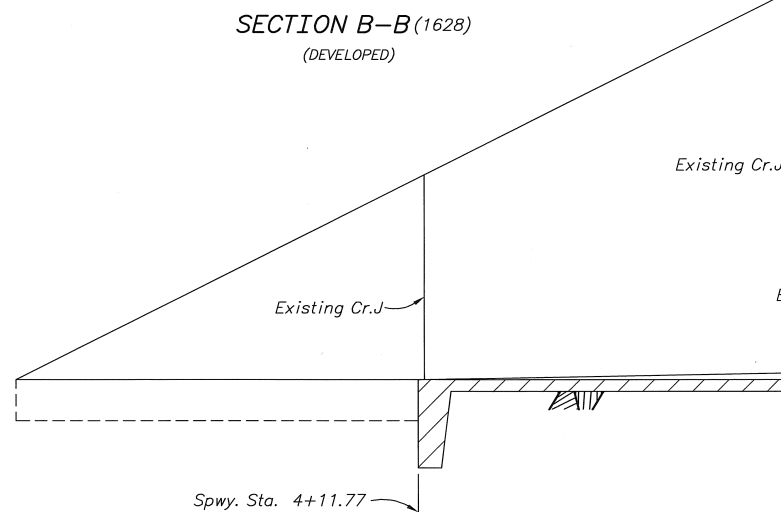
C

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A

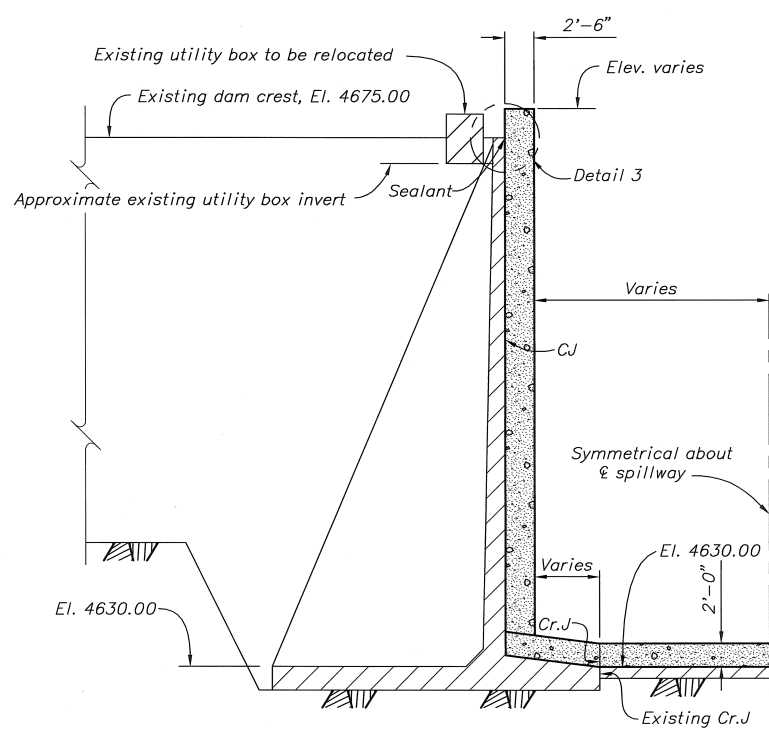


SECTION B-B (1628)
(DEVELOPED)

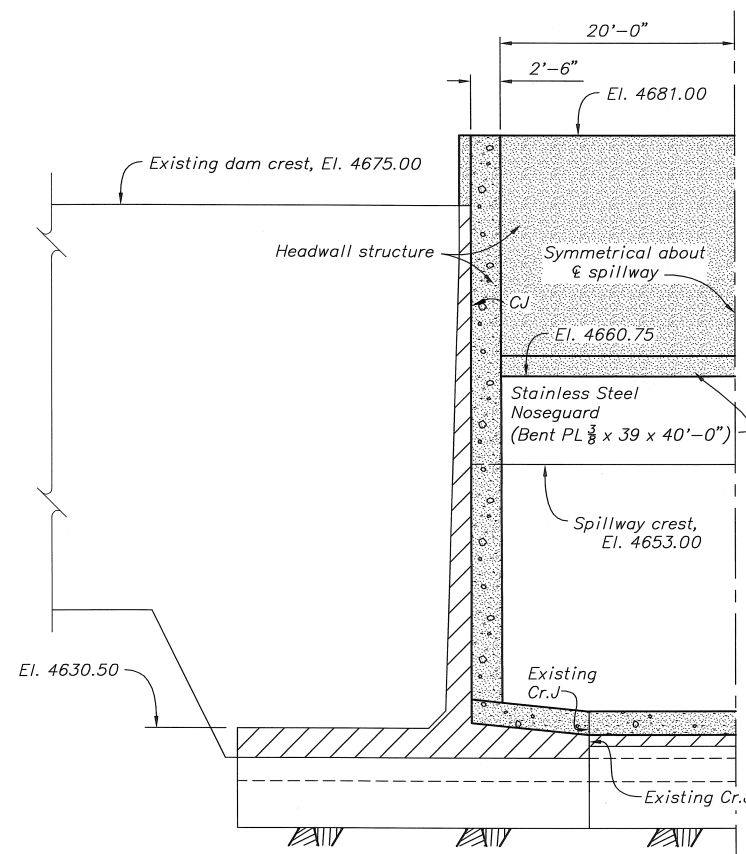


SECTION A-A (1628)

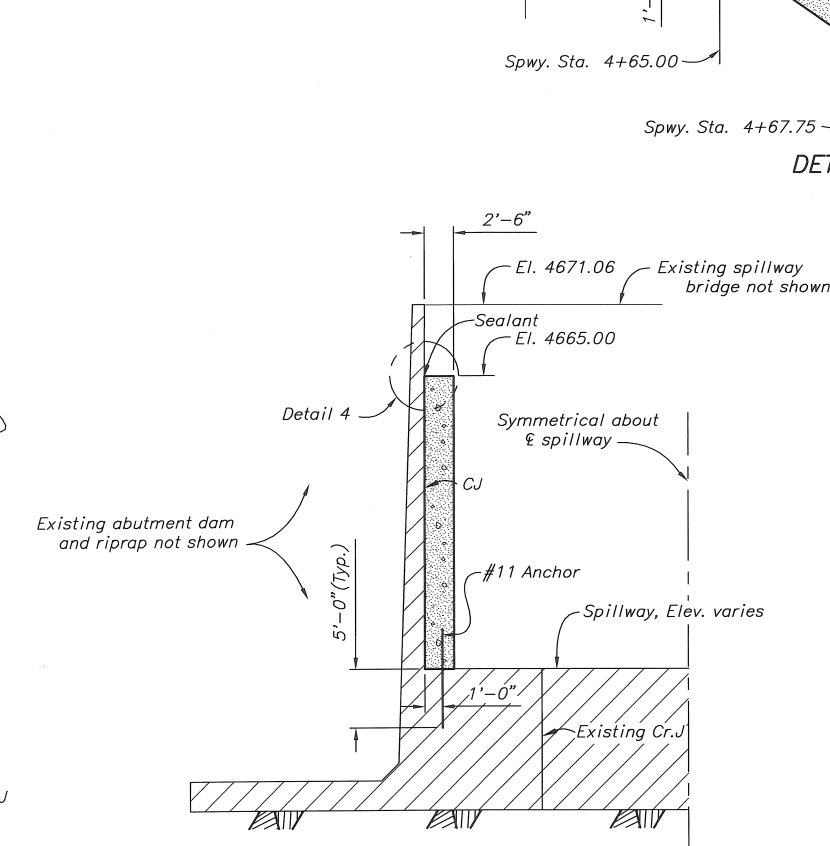
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SCALE OF FEET



SECTION C-C (1628)
(DEVELOPED)

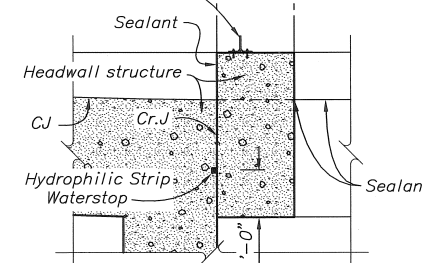


SECTION D-D (1628)



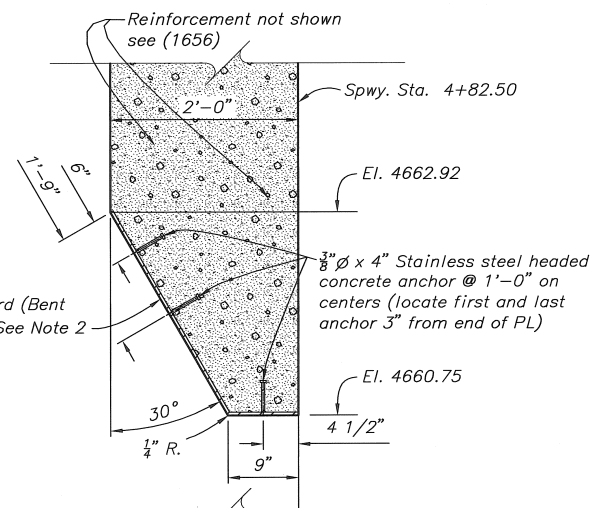
SECTION E-E (1628)

For Parapet Wall and 6" Retrofit Waterstop, see (1632)

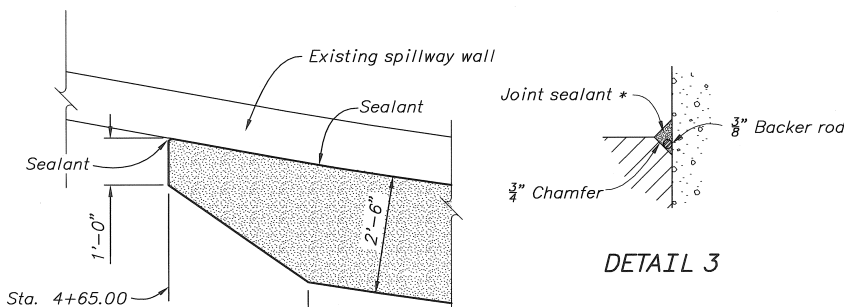


SECTION F-F

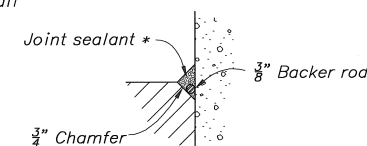
Stainless Steel Noseguard (Bent PL 3/8 x 39 x 40'-0"), See Note 2



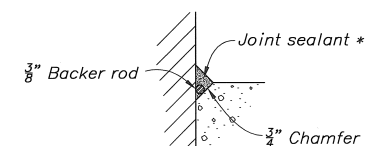
DETAIL 2



DETAIL 1 (1628)



DETAIL 3



DETAIL 4

NOTES

1. Fabricate noseguard in shop with anchors at locations shown. Final anchor location may be adjusted in field as required to ensure that anchors do not make contact with concrete reinforcement.
2. * Exposed joint sealant surface should be at a 45° angle when finished.
3. For additional notes, see (1628).

REV NO 1	2010-08-09 D. Mares, P.E.	ADDED NOTE 2 AND DETAILS 3 AND 4.
<p>ALWAYS THINK SAFETY</p> <p>UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION PICK - SLOAN MISSOURI BASIN PROGRAM OREGON TRAIL DIVISION - GLENDO UNIT - WYOMING GLENDO DAM MODIFICATION SERVICE SPILLWAY HEADWALL STRUCTURE PROFILE AND SECTIONS</p>		
DESIGNED HILLERY VENTURINI	CHECKED JOHN ELLINGSON, P.E.	
DRAWN J.E. MARKLEY	TECH. APPR. DANIEL D. MARES, P.E.	
<p>APPROVED JOHN H. LABOON, P.E. PEER REVIEWER - JOHN H. LABOON - MANAGER, WATERWAYS AND CONCRETE DAMS GROUP DENVER, COLORADO SHEET 2 OF 2</p>		
		449-D-1629